

Edisto RBC Meeting

12.15.2021

Attendance:

Edisto RBC Members Present In-person: Chair: Hank Stallworth, Vice Chair: Landrum Weathers, Jeremy Walther, Alan Mehrzad, Alta Mae Marvin, JJ Jowers, Jason Thompson, Eric Odom, David Bishop, Hugo Krispyn, Kirk Bell & Joel Duke

Edisto RBC Members Present Online: Amanda Sievers, Laura Bagwell, Alex Tolbert, Danny Burbage & Johney Haralson

Edisto RBC Members Absent: Jerry Waters, Brandon Stutts, Will Williams, John Bass, Trey McMillan & Mark Aakhus (Patrick Zemp, alternate, present)

Planning Team Present: John Boyer, Scott Harder, Andy Wachob, Joe Gellici, Rob Devlin, Leigh Ann Monroe, Jeff Allen, Tom Walker, Kaleigh Sims, Chikezie Isiguzo & Matthew Petkewich

Total Attendance: 44

- 9:05 am Hank kicked off the meeting agenda overview
 - USGS needs more time to work on model to make sure it is doing what it needs to do
 - Hank- does one member offer motion to approve modification of agenda?
David Bishop made a motion all in favor
 - Motion to approve minutes, Hugo, and David second, all in favor
 - Memory of Charlie Sweat
- John B. open floor to public comment- no comments

Old business / New business

- **Laura Bagwell:** SW stakeholder committee updates, yesterday DHEC convened the 3rd meeting of the SW Stakeholder group in Columbia. One or two other RBC members attended, most stakeholders from ag, irrigation, farm bureau, water utility, and conservation groups. Half of the attendees were new to the process, so the meeting was the first for many. Rob D. and others summarized what goals are for the regs and discussed unintended consequences with current regs.
 - Brainstormed ideas: allocation issues, reasonable use embedded in safe yield calcs, group brainstorm ideas in 3 bins for immediate results, intermediate results, and long-term results
 - Discussed reasonable use and if/ how reasonable could be applied to current withdrawals. Discussed if it could be applied retroactively. Did not reach consensus on discussion, DHEC intended to convene 3-4 SW meetings but results from the meeting will likely lead to more meetings to continue the discussions
 - It was requested that SCDHEC provide a framework and let the stakeholders inform if it will or will not work for stakeholders, incremental progress

- Jeff A: great summary, Charles W was another PPAC member present at the meeting. Productive discussion, issues are tough and complicated, appreciate everyone being at the table to have the discussions
- Rob D: SCDHEC action item is to put together a write up of pluses and minuses and things to think about, this is next step. Put ideas out there for stakeholders and build from there, next meeting will be late January. There is no way to change regs. It will have to be a legislative change, so we want to know what are the immediate concerns like Edisto allocation. Another big concern is the lawsuit filed in 2015 against EPA by American Rivers about SC Surface water regs. having a numerical water standard for classification. Another lawsuit was filed and sent to headquarters at EPA, currently no final decisions but EPA might tell DHEC they need flow standards. DHEC thinks stakeholders need to be involved rather than the court telling them what they will need to set. DHEC will synthesize notes from meeting to get out to stakeholders as soon as they can.
- Scott H : Rob, are there any documents we can read to understand the lawsuit
- Rob: has copy of original request that is public domain that he can share with the group

Process metrics/ survey results

- John B: Reviewed survey questions and answers, information can be found in the PowerPoint presentation
 - Attendance records: 9-members with perfect attendance, 10 with 1 absence, 4 member with 3-7 absences, important to identify an alternate and have them attend
 - John: any comments from the RBC? No comments

Demand Side Surface-water Management Strategies

- John B: Reviewed model results- more information in the PowerPoint presentation
 - Identified issues from SW availability
 - Strategies – reviewed potential strategies
 - Ex. water loss programs, low flow fixtures, soil sensors, etc.
 - Focus on demand side strategies
 - Provided an overview of steps for management strategies, will take a vote on the strategies provided to see if want to adopt in plan- no votes yet
- **Scenario 1: what happens to low flow if existing drought management plans go into effect-** more details in PowerPoint
 - John B: Provided plan and triggers
 - John: Orangeburg (Eric O.) have you ever triggered your drought management plan? Eric said No
 - John: Have not looked at supply side to augment yet but will in the future
 - Landrum: Jason, what is Charleston’s average use and what’s the permit for?
 - Jason: Overall demand around 90 MGD, peak is 130MGD, base 70-75 MGD counting industrial, current permit is 287 MGD Lake M. 150 and 10 at other sources
 - John B: Overview of voluntary reductions: provided California example, governor request voluntary conservation with goal of 15% reduction in public water use, found its down by about 13% but this takes some time

- Hank: I read that what effected the change was when they prohibited lawn irrigation then reduction increased
 - John: SC does not have a lot of data to show if voluntary reduction is effective
 - Overview of results and when drought action triggered in the business-as-usual 2070 model and High demand scenario
 - Eric O: under high demand scenario, still shows low flow 168cfs for Orangeburg , in 2002 when we hit lowest recorded stream flow it was around 71 cfs
 - John will check model to be sure it is predicting properly
 - Scott: Are you using monthly time step in the model? John, yes used monthly time step, might see difference if we use a different time step. Little different from what we have looked at in the past with Jason’s suggestion of a daily time step
- **Scenario 2: low flow with scenario 1 strategies plus agriculture water efficiencies strategies-** more detail in PowerPoint presentation
 - John B: Overview of conditions and assumptions: 70% (center pivot use) existing and future irrigators can achieve 15% reduction in projected demand via water audits
 - 70% assumed to be those with highest demand, excluding Walther’s. Basis for 70% came from Clemson University study (2017-2018)
 - Landrum: That % will go down in the future as everything becomes more efficient
 - John: There is no built-in efficiency assumption (additional over what we have now) Scott, believes there was not additional assumptions
 - Assumption is that the higher users are using spray technology
- **Scenario 3: 1+2 plus municipal conservation strategies** -more detail in PowerPoint
 - Municipal water users, achieve 15% reduction in demand by implementing a portfolio of water conservation and efficiency / loss strategies
 - John B: Overview of case study: Town of Cary implements things like 3-tiered water rate structure, landscape and irrigation codes, toilet flapper rebates, etc. strategies reduced per capita water demand by 29% from 2001 to 2016
 - Case study: Metro region North Georgia, developed water conservation and efficiency plan with similar conservation strategies to Town of Cary and saw a 24% reduction from 2003 to 2018
 - Scott: did they break down which method was most effective? John, not that aware of – Scott: wonder how much they think public education influence that reduction, just curious.
 - Jeremy: it’s got to be the lawns that is making the biggest impact
 - Georgia Water Stewardship Act of 2010- sets to provide water loss control requirements which requires utilities serving over 3,300 to conduct water loss survey annually and demonstrate progress
 - Focus is on the ‘real losses’ – leakage in water mains, service lines, overflows etc.
 - Eric O: Orangeburg accounts for 90-95% of water
 - Jason: At about 13% loss, but lots of category of water use and water loss. Challenge with 13% is needed to do better job of accounting subcategories, could get lower than 13% if account for the categories better
 - Alan M: Echo what other utilities said, their water loss is 12.5% but need to consider other uses and categories that are not billed but required to do
 - Alta Mae Marvin: Could ask if City of Winder has implemented any water loss practices

10:25am – 15-minute break

Results from model

- John B: Overview of results from scenario 1-3 -Business as usual results
 - Hugo: 2020 drought flows should be 2002 in the presentation
 - Jeremy: how I read this is no matter what we do, it comes down to low flow period is out of our control
 - John: impact of demand strategies are fairly minor compared to mother nature
 - David B: business as usual, is that based on actual water use or permit registration? John: its what DNR projected under moderate growth scenario use in 2070
 - John: future basins will use different terminology from business as usual to something else like moderate growth scenario
Scott: yes
 - Jason: how many total months in timeframe? John B: 1,049 months
- John B: Overview of results for high demand
 - Landrum: if we went back to some of the other stuff it seems that upstream of Orangeburg it never triggered a problem, is it fair to say that everything west of Charleston's intake is in pretty good shape? John: depends on what is meant by in good shape, Landrum: seems like until you get to Charleston's intake that everything is in good shape and not triggered John: just because drought measures are not triggered does not mean that everything is okay it depends on what minimum in stream flow is determined to be and if we want to establish a surface water condition to keep water at a certain level
 - Alta Mae Marvin: impacts in 2002 went further upstream on the river than just near Givhans
 - Landrum: data being presented does not show the impact up the river
 - Jason: model limitations and previous graphs looking at monthly will be different from daily, challenge is when you try to model and simplify things, need to be honest about where the river has been and what the daily values have been. The rivers been low further upstream during previous droughts many times especially looking at daily values. Need to consider things that will address problems we know are there not just the model predictions to make decisions, lets come up with solutions and not reasons to not come up with solutions

Summary: Demand side scenarios- overview of what the scenarios consist of and results / management plan actions for each scenario

Questions and decisions for RBC?

1. Do you want to see any additional demand-side modeling data or analysis?

- Jeremy: could DNR put together demand on river bottom / land use for area? Forest probably uses a good amount of water. As forest mature and use more water could present more risk.
- John: brought this up before about transpiration from forest
- David: Tree leaves are pumping water out, protection projects usually restore to natural levels. what's not known if you managed the forest by cutting it would young trees continue to consume more water or the same as mature since then you would have a lot of smaller trees. We do not know the balance of that and what it means because now you might have a lot of little trees consuming water- this might be a knowledge gap for someone to fill
- Landrum: can we get per acre consumption rate ?
- Alex B: strictly technical, yes trees use more water but there are unintended factors to removing trees.

- John: How much recharge from different land use (SWB model)? Alex: can get idea of open field vs forested vs bare field... this is something the model can do
- John: can we quantify what is lost in transpiration to provide an answer of bare soil vs mature forest in regard to recharge ?
- Alex: yes just re run model with parameters you are interested in, but this is simplified because there could be unintended consequences but you can do high level estimate. Might see bigger impact in uplands for GW recharge not bottomland.
- John: We recognize that trees have a demand on water but other consequences would have negative impacts. This is up to RBC to decide if this is a management strategy to consider or to further study (tree management)
- Alex B: point out you might increase hazard of flooding if forest is managed by cutting
- Scott: We do have staff working on how recharge and it would change over time with different land use protections, not considering things like clear cut, but would need to verify if balance model can do this. Forest wetlands have always been part of natural hydrology but might have a lot of hurdles
- Jason: transpiration would be good to know, from data already presented we could look at unimpaired flow to look at that. Seasonal low flows from trees but also seasonal precipitation patterns, we know the river will go low absence of withdrawal but how much of low is due to trees or other things
- Laura: I think it would be interesting, if budget and schedule allow, to know how much water is taken up by trees and how much water leaves through transpiration, but echo concerns about hypothetical tree removal from bottomland might create far more problems than benefit from keeping water in basin
- Hugo: Recognize that trees do use water, but as a representative of an environmental group we do want to protect the ecosystem. Recognize it as an academic question
- Marvin: mother nature is going to do what mother nature will do, got all these water flow issues and DNR does a lot of quality testing. Are we going to have anything looking at periodic information of the ecology of river and balance of the system. Will we have the ability to make a statement on water quality as plan progresses ?
 - John: Coordinate with DNR and other programs that monitor quality over time so we will see if there are any impacts over time.
 - Marvin: if river out of balance will DNR be able to address that John: part of adaptive management in the future, identify actions in the future in case something happens
- Landrum: Did not interpret Jeremys comment as wanting to clear cut entire river bottom in basin, when talk about strategies there will be pluses and minuses to everyone in the group, don't want to clear cut Edisto river bottom not what we are saying, but if that is a management strategy to try to save some water then maybe we shouldn't automatically take off the table until we look at it in more depth. Don't want to just say 'No' to an idea, would want to look into it further
- Jeremy: not suggesting clear cut entire basin- no one would desire that. Point is if we are having a demand side conversation, and we are not considering the largest demand in the basin then we might not be serving our role as a basin council.
- Hugo: is there a distinction between a tree as a crop vs natural woodland?
- Jeremy: not to my knowledge, consider trees as a whole looking at it from a water budgetary standpoint how much does it consume a year
- David B: there is a knowledge gap between transpiration rates from 10, 20, + year forest rates . might want to look into if knowledge exists in southern hardwoods
- Jeff: US forest service published work where they looked at coastal forest over 35-year period and did water balance, estimated 75% of precipitation was used up in evapotranspiration

- Jeremy: Bruce shared numbers around 80-85% consumed by forest so would be neat to see on graph and see what consumption is over lifespan of tree, if looking at demand and not considering forested acres then might be missing the mark
- Joel: are we more concerned about future land use as a crop what happens as basin continue to grow and convert to pine forest?
- Jeremy: are we making right decision on future land use? It's a water budget and if we don't know what consumption is from one of the largest users in the basin then we can't make best decisions on management decisions ... looking at from budgetary standpoint
- Scott: We could possibly pull in a speaker in the following meeting to talk about this topic. I don't think we have a tool to do this modeling right now and might not be able to develop in a timely manner. Land use and how it effects flow is an important question, might be beyond the scope of this original round of planning.
- Alex B: to Jeremy point there are things from a landscape scale that can improve water budget, this will also depend on timing of when that water arrives, certainly attempting to do that on the resiliency planning it is an important topic that needs to be better understood.
- Laura: love to know estimate for evapotranspiration – bet there is reliable data in literature to semi quantitatively estimate that. Also, if we want to understand that and include in water budget, we have to balance the knowledge that trees suck up water and also have other beneficial contributions to riparian ecosystems, if going to be fair we need to realize all of those aspects
- Danny: pretty much reflect with what Laura says, a look at tree water consumption could be valuable but also look at complications that result in lack of trees.
- JJ: open up serious can of worms with land use, if going to talk about trees are, we also going to talk about some crops, might be a complicated topic
- Jeremy: maybe opportunity for local NRCS offices to promote long leaf restoration and instead of 600 stems per acres with more of a native or natural landscape with 100 or so stems. Not suggesting barren land but native grasses that would also sustain more of a native state. Would be interesting to see what consumption would be with more native habitat and explore funds to support these programs that could help landowner and maybe help water budget.
- John: follow up with potential speaker to see if they can bring any information to RBC
- David: I could be curious to compare this to unimpaired land because when there is a drought there's a drought, and curious to know how much withdrawals are going beyond that, how many days or months when we see water not there, will it not be there for how much time and would it not be there if there is no one taking water
 - John: can easily add this to the current data and present, any other request for demand side strategies ? No.

2. Do you feel that we should move to Step 2 with the portfolio of demand side strategies?

- Jason: yes, they should be in the plan, but do we want, as individual stakeholders, to consider them as a strategy. Its okay to suggest alternative crops or types of silviculture within the plan the data just needs to be there to make good decisions based on the data.
- John: RBC should incorporate into the plan but its up to the stakeholders if they want to implement them
- Jason: yes, will be up to utility to decide if they can get from 10 to 5% water loss based on logistics
- David: different levels of suggestions, would like to see supply side before we decide what is the most practical recommendation

John: break for lunch (working lunch)

Supply-side strategies and low flow strategies for effectiveness evaluation

- John B: Overview of strategies
 - John: Question to Orangeburg- emergency interconnection lake Marion, used ASR wells intermittently in what circumstance would you use interconnection? Eric: those are tools we plan to use to meet reductions, wouldn't request customers to reduce but would pull from wells John: would Orangeburg consider using those to help with demand downstream? Are they strategies? Eric: Yes
- John B: Ag. Limited conjunctive use: only known example is Walther's Farms
 - Rob: statewide perspective Dominion has capability to pump out of river, couple larger system that have SW as main source and GW and second source but not really aware of Ag. But we could get back to you on that
 - Hugo: is there a difference in someone using it conjunctively vs back up?
 - John: yes, there is a difference, Jason you mentioned farmers with storage ponds on tributaries
 - Jason: to extent of farm pond, I do not know if they have pumping capabilities to pull from them, I think a lot more people have ponds but can and how to do they utilize them, not sure
 - John: we did not include small farm ponds in the model
- SCDHEC- Millwood farms does have some conjunctive use capabilities

What additional supply side strategies does the RBC want to consider?

- Jason: why don't we just go ahead and model low flow strategies, if we have the data why not
- John: For Ag. Users we could compare SW and GW registration
- David: what is length of the supply side shortage –can we use historical data ?
- John: Think about what we are trying to solve on supply side, what are we going to do to limit excursion under minimum in stream flow, think about supply side strategy with regard to providing more flow during low flow times, short term conjunctive use is certainly one as long as not impacting capacity use areas.
- Hugo: inter-basin transfer option, they don't just give you that flow, do they?
 - Eric: No, we would have to purchase it as wholesale customer and it's a minor supplement
- David: these strategies make a difference to the farmers that don't have water, also see strategies as creating resiliency – maybe some clarification of the different goals but also individual pinch points
- John: not really focusing on flow in tributary where there are Ag. lands so some of these strategies could apply to tributaries, for individual pinch points we could recommend strategies
 - Hugo: individual pinch points, people who get new permits do all the plan B planning, but grandfathered permits do not – so looking at grandfather users there is a template to help them do this
 - Rob: yes, new permits have to have contingency plan for what happens when low flows
 - John: Hugo recommending that existing users could follow contingency plan
- Laura: useful to assess strategies based on cost? Can we screen it first?
 - John: Fairly easy exercise to do, ex. impoundments costly depending on size but implementable based on already being used. Not sure lots of opportunity for water-reuse, conjunctive use is a cost on the individual. These are initial thoughts
- Alta Mae: any chance infrastructure money can be used to implement some of these strategies

- John: like to say yes, the quicker we get a plan on paper and proposed the better chance to get money for implementation
- Rob: multiple pots of money determine how it can and should be used, legislation will be figuring out how to use it – won't know much for a couple months
- John: shovel ready projects will get prioritized, small water systems can get money to update infrastructure to reduce water loss
- Jason: what contingent capabilities exists right now? Need to see what basin flows could be given all contingency out there – what is current conjunctive use capability?
 - John: something we can investigate , also scenarios where we make assumptions on conjunctive use
 - David: I think we should evaluate
- Rob: Batesburg-Leesville intake is not permitted, 2023-2024 they will no longer have the Saluda withdrawal unless they reapply, they are looking to find other sources outside of Edisto
- Hugo: wondering about utilities drought plans, is there limited bandwidth there, what happens if there is an actual drought
 - Jason: put a lot of detail regarding utility contingency plans, which plans call for voluntary and mandatory restrictions even in presence of waning source

- John: Rehash what we heard, responding to Jason we will dive into permits and registration to ID all conjunctive use. Model run with assumptions to conjunctive use, 20% of upstream users 40 and 60% etc. and can come back with that information. Anything else with modeling on supply side? NO
- January 19th plan to meet, still up in the air if USGS plan to present results so this could be in February. See if we can get speaker and talk about land use impacts Feb 16 and March 16th for following meetings
- John: Do y'all like the U shape? Limit the number of copies of print outs
 - RBC: yes

Dr. Walker: nothing additional online

Minutes by: Kaleigh Sims & Tom Walker

Approved: 1/19/2022

Zoom online chat:

09:01:00 From EREC Auditorium to Everyone:

Good morning all... we'll get started soon. Waiting on a quorum.

09:03:47 From Laura Bagwell to Everyone:

Good morning. Laura Bagwell is here via Zoom. I am happy to make a few remarks about yesterday's SCDHEC Surface Water Stakeholders group meeting.

09:07:20 From Thomas Walker to Everyone:

thanks laura, I'll mention it and you can unmute here in a minute

09:30:45 From Laura Bagwell to Everyone:

Opposed.

09:31:02 From Danny Burbage to Everyone:

opposed

11:25:08 From Laura Bagwell to Everyone:

I agree with Alex Butler's and Scott Harder's concerns about hypothetical tree removal from the Edisto bottomland.

11:36:50 From Laura Bagwell to Everyone:

Like Jeremy, I would like to have an estimate for evapotranspiration in Edisto River Bottom and streamside areas. I suspect reliable data exist in the scientific literature.

11:41:13 From Ed Bruce to Everyone:

If you start quantifying evapotranspiration contribution to reduced river flow, then you would need to account for the loss of water vapor (no trees) to reduced rainfall.

11:41:43 From Danny Burbage to Everyone:

In addition to an estimation of evapotranspiration an estimate of the long term effects of tree loss on the entire river ecology; possible erosion, silting, flooding, etc. might be helpful.

11:47:37 From Thomas Walker to Everyone:

thanks all

12:37:53 From Laura Bagwell to Everyone:

Is it useful to assess and rank these strategies according to their cost and likelihood/ease of implementation? Then we could evaluate the highest ranked strategies.

12:45:31 From Laura Bagwell to Everyone:

Also, could assess the expected impact of each strategy.

13:00:32 From Laura Bagwell to Everyone:

It was nice to hear from a wider range of voices today. See you all in January.