MINUTES of the 13th PEE DEE RIVER BASIN COUNCIL (RBC) MEETING (HYBRID FORMAT) HELD ON JUNE 27TH, 2023, at Clemson Pee Dee Research and Education Center, Classroom #240 Darlington, SC 29532

RBC Members Present: Eric Krueger, Jeff Parkey, Cara Schildtknecht, Megan Hyman, Mike Bankert, Jeff Steinmetz, John Crutchfield, Walt Beard, Michael Hemingway, Cliff Chamblee, Tim Brown, Cynthia Walters, Snipe Allen, Doug Newton, Frances McClary, John Rivers, Hughes Page, & Lindsay Privette

Absent: Buddy Richardson, Jason Gamble, Brandon Durant, Cricket Adams, & Bob Perry

Planning Team Present: JD Solomon, Matt Lindburg, Scott Harder, Brooke Czwartacki, Andy Wachob, Alexis Modzelesky, Joe Koon, Leigh Anne Monroe, Hannah Hartley, Thomas Walker, & Chikezie Isiguzo.

Total Attendance: 48

1. **Call the Meeting to Order (Buddy Richardson, Chair of RBC, J. D. Solomon (Facilitator)**
   a. Review of Meeting Objectives

   J. D Solomon (the Facilitator) called the meeting to order at 9:00 AM and welcomed members to the 13th Pee Dee RBC meeting. The main objectives of the meeting included reviewing surface water management strategies and coastal groundwater management models, discussing the first three chapters of the Plan, and having a breakout-session to start working on writing the Basin plan.

   He announced that a member of the Pee Dee RBC, Bob Perry was involved in a boat accident and was recuperating from injuries he sustained. He used the opportunity to enjoin members to prioritize safety as they engage in summer activities.

   b. Approval of Agenda, May 28th Minutes and Summary

   The agenda was unanimously approved. Michael Hemingway made a motion to approve minutes and summary documents, which Tim Brown seconded and which were unanimously approved.

2. **Public Comment (JD Solomon)**

   There were no public comments. Also, there were no Agency comments.

3. **Surface Water Management Strategies review (JD Solomon)**

   J. D. Solomon reminded the members that water management strategies are, by our definition, used to mitigate or eliminate any identified conflicts or water shortages. He requested the members to start making notes of water management strategies they think may be needed in the basin or alternative strategies they think would benefit the basin. The target is to have the draft documents ready by the end of 2023, as proposed in the project timelines.

   COMMENT

Scott Harder expanded the definition of water management strategies to include strategies targeted at increasing the water supply. Some strategies are demand strategies, while some are supply strategies.

J. D. Solomon explained that some ways of looking at the supply side include defining if there is a need for new storage, water reclamation, or opportunity for conjunctive use. He also reminded the members that it is possible to note that there are no supply problems.

He further mentioned some demand strategies, for example, conservation and water management installations in irrigation equipment, use of cover crops, time of use pricing, and prescription models. Matt Lindburg mentioned turf replacement as one of the demand strategies used in some states in the West.

COMMENT

What is the benefit of upstream reservoirs, and what could be its impact if one is constructed on the Pee Dee Basin? What can we learn from other States, especially adjacent states? Can dykes along the river be redesigned to add more water to the wetlands when there are no flooding conditions? Should we consider how much paving we allow?

Other comments included coordinating with North Carolina on regulating and managing the Pee Dee basin, especially during low flow, conservation pricing, and municipal water audits.

From what we've seen, demand does not typically exceed supply for surface water under any of the models runs, so we may need to focus on when we have droughts, where we may have issues. Could do this through drought response, with things like voluntary reductions, limiting certain activities, developing a step-down type response for droughts where responses and reduced use intensify as drought worsens.

Other demand strategies include recycling, irrigation management, the use of cover cropping, car wash water recycling, xeriscaping, EQIP – NRCS program, and incentivizing stakeholders to adopt water conservation strategies. Georgetown county has a new proposed tree ordinance where developers can't clear cut the lot due to tree fines – moving to $500 per inch in tree diameter.

J. D. Solomon encouraged the members to signify if they needed expert guidance in any area of interest to guide their understanding of the supply and demand sides of water management strategies, including stakeholders like real estate developers or golf course managers.

RBC Note Cards:

SW Management Strategies

Supply-side

- Build supply – backup source
- Water reclamation – put wastewater to good use
- New storage needed – water reclamation – conjunctive use
    - Off-stream reservoir(s)
    - Look to other states
    - Dike construction/engineering
- Construct a new dam within SC along the Pee Dee – water reclamation

- What can we learn from other states/SC water basins? – Use of dams on SC side – better coordination/communication/agreements with NC and GA
- None, present modeling shows no significant shortages – offstream reservoirs in the lower coastal plain…disadvantages are environmental impacts outweighs reservoir development – NC cooperation – FERC licenses require minimum flow releases from dams
- Water reclamation seems prudent, just feels like what a good steward of resources would do but also costs $
- New small storage – dikes, built for flood control designed so that during normal flows it would allow water to go into wetlands
- New storage – water reclamation "grey water" – conjunctive use – aquifer storage and recovery (ASR)
- Cooperate with NC dam releases
- Reclaim and recycle water
- Past plan to build small reservoir in the Pee Dee

Demand-side

- Residential yard water use – curb after rain or time of year – water buckets for sprinkler systems
- Promote or encourage conservation with industrial, commercial, and residential users – farmers take advantage of Clemson center pivot audits
- Agriculture – nozzle audits, cover crops, irrigation equipment – Landscape – time of use, reclaimed
- Increase equipment efficiency – increase use of reclaimed water – change lawn irrigation requirements
- Education of developers – understand challenges of developers and golf courses – encourage industrial water use and reuse
- Irrigation efficiencies/technology (including residential landscaping) – cover crops – unified conservation policies in the basin
- I need more residential, municipal, industrial use examples. I don't see ag or golf courses needing our help to encourage conservative responsible water use. Could governments give incentives or otherwise adjust fees to developers based on their use of responsible landscaping. Also permeable surfaces
- Conservation pricing and time of use pricing
- Agricultural audits – conservation water sensors – irrigation equipment – cover crops – time of use water restrictions – conservation irrigation for HOAs
- Flatten demand – conservation cover crops – irrigation time of use – aquifer storage
- Cover crop – all irrigation management via education – reclaim/recycle – porous surfaces – keep vegetation in highway medians to slow runoff
- Center pivot audits for efficiency – most fields that are profitable to irrigate have been done – crop rotation – under pivot? – cover crops

4. **Overview of Coastal Plain Groundwater Model (Andrea Hughes, USGS))**

   Andrea Hughes presented a broad overview of the study "Recalibrating the South Carolina

Coastal Region Water Availability Model for the Simulation of Groundwater Flow and Water Budgets in the Pee Dee River Basin."

She explained that groundwater models are used by water resource managers to answer questions such as: how will groundwater management decisions impact the water levels over the next 50 years? How will groundwater withdrawal affect nearby river discharge? Are coastal communities' groundwater supply vulnerable to saltwater intrusion? Where are areas of concern in an aquifer that may need additional observations? She explained that a water model is a numerical representation of groundwater flow in time and space.

Andrea explains some limitations of the model, such as simplifying the actual groundwater flow system, quality of observation data, and model parameters. Furthermore, model calibration is used to estimate unknown aquifer properties. Good quality data reduces projection uncertainty and leads to a better fit to historical data, thereby aiding decision-making. She explained the process of developing the Pee Dee Basin model and demonstrated parts of the process to the members of the Pee Dee RBC.

Question – about NC/SC reporting and disparity in NC/SC wells

Question – well locations and well-level measurements in NC (get data). Not all aquifers present in the Pee Dee such as the Gordon and the Floridan. Andrea will get water-level information from Brooke

Question – do the cubes determine water movement – vertical and horizontal movement?

Answer: We get at that in calibration and the model will adjust to fit

Question – moving from yearly to monthly – how do we get the data?

DHEC requires monthly reporting

DEQ could generate more wells with their reporting

Comments: concern regarding inputs is there any climate data?

Answer: part of the recharge / soil water balance modeling 2000 x 2000 grid. Monthly based on rainfall, landcover, etc

Comment: cone of depression interest @ Georgetown and our modeling doesn't show the cone of depression. We can learn how much water we're missing

Comment: We can't find anything we are missing / not sure where the Georgetown cone of depression is coming from

Question: residential wells?

Answer: usually not that deep. The Crouch branch is hundreds of feet down

5. **Coastal Plain Groundwater Model: Calibration and Uncertainty (Bradley Harken, USGS)**

   The presentation of the Coastal Plan Groundwater Model results will be made at a future meeting.

6. **Discussion of Chapters 1-3 of the Basin Plan (JD Solomon)**

   The members of the Pee Dee RBC met in break-out rooms for discussions on Chapters 1-3 of the Pee Dee River Basin Plan.

   J.D. Solomon explained that although a final decision on the Basin Plan will be made at the end of the writing process, the members are encouraged to reach a consensus as they

develop each chapter.
Matt Lindburg refamiliarized the members of the Pee Dee RBC with the contents of Chapters 1 – 3. Each group discussed what they thought were the most important challenges in the Pee Dee Basin and who they think is the audience the Pee Dee River Basin Plan seeks to reach.
One question was whether certain water management strategies can be tested in SWAM – is it feasible?

7. **Chapter Committee Breakout Sessions**
A summary of the notes from the in-person breakout sessions includes:

Chapter 1: Introduction

- What are the most important water supply or water management challenges in the Pee Dee River basin?
  - The cone of depression in Georgetown
  - The exclusion of tidal zones from the SWAM model, although they have wells further inland, specifically in Horry and Georgetown counties.
  - Addressing population growth
  - Wetlands Mitigation
  - It is unclear who is in charge of water planning and decision-making. How well do they work together and collaborate?
- What audience(s) are the most important to reach with this plan (e.g., the general public, stakeholders with general water knowledge, policymakers, water experts)?
  - general public
  - stakeholders with general water knowledge
  - policymakers
  - water experts
  - State and local governments (e.g., County Councils, Zoning Boards, etc.)
  - NGOs
  - Riverkeepers
- Previous water planning efforts are cited in Chapter 1. What existing water planning efforts do you know of and would like to see briefly described in the plan?
  - USDA Conservation District recommendations for irrigation nozzles. This may not necessarily fit here but was mentioned during the breakout session.

Chapter 2: Description of the Basin

<u>Question 1: What are the most important challenges in the Pee Dee?</u>

- Balancing the competing uses of water supply
- Education and awareness (policymakers, water users, general public) and incorporate into planning efforts
- Population growth in the Basin—management of growth with water supply

- Groundwater supplies: recharge vs. withdrawal rates
- Distribution of water supply from natural sources i.e., headwater users water needs vs. main stem users
- Flooding—water management of such events

Question 2: What audience are we trying to reach with the Pee Dee River Basin Plan?

- Policymakers (county and state legislators) and Planners
- Business owners—industry and agriculture
- Individual water utilities
- NGOs, Environmental Groups, and Recreation Users
- Breakout Group Note: The document needs to be easily read by various users (not too technical). Technical analysis could be contained in appendices for those users interested in specific technical analysis.

Question 3: What makes the Pee Dee the Pee Dee?

- Diversity in the Basin—River system characteristics as it transverses from Piedmont Fall Line Zone to the Coastal Plains in SC, Water users, Ecology including diverse and unique wildlife attributes (including RTE species), Socio-economic users, and Scenic Values
- Largest river basin in Carolinas
- Large-scale agriculture use—major contributor to SC agriculture products
- Major highways/interstates that intertwine with the river which is conducive to commerce and growth

JD wrapped up this session by noting that all three breakout groups had similar audiences: the broader public, policy-makers, and technical audiences.

Comment: It would be good to have a database of other reports and implementation manuals.

8. **Closing Comments (JD Solomon)**

Scott Harder offered to provide more information on Recharge Model if the members of Pee Dee RBC find the information useful. He also noted that it will be useful for DHEC to talk about Groundwater Management Plans. J. D Solomon rounded up by noting that the members should consider a session with a developer well-versed in green development, as well as a session on registration and permitting. The meeting concluded at 12:15 pm.
The next meeting will be held on July 25th, 2023, at Clemson Pee Dee Research and Education Center, Classroom #240 Darlington, SC 29532

Minutes: Chikezie Isiguzo and Tom Walker
Approved: 8/22/23

RBC Chat:

08:59:26 From Thomas Walker to Everyone:
we'll get started in a minute or so

09:02:28 From Kirk Westphal to Thomas Walker(Direct Message):
Hi Tom - Kirk here. John asked me to sit in today in case there are questions about the

modeling.
09:02:42 From Thomas Walker to Kirk Westphal(Direct Message):
thanks kirk for being here
09:05:08 From Eric Krueger to Everyone:
aye
09:05:15 From Jeff Steinmetz to Everyone:
aye
09:08:53 From Thomas Walker to Everyone:
you can type in any water strategies as part of this session in the chat
Water management strategies discussion
09:13:55 From mike b to Everyone:
rain sensors
09:16:15 From Jeff Steinmetz to Everyone:
From what we've seen, demand does not typically exceed supply for surface water under any of the model runs, so we may need to focus on when we have droughts, where we may have issues. Could do this through drought response, with things like voluntary reductions, limiting certain activities, etc.
09:16:38 From Eric Krueger to Everyone:
conservation pricing, municipal water audits too,
09:18:00 From Eric Krueger to Everyone:
+1 for Jeff's comment -- I'd like to see us develop a step-down type response for droughts where responses and reduced use intensifies as drought worsens
09:19:11 From mike b to Everyone:
incentivize xeriscape landscaping.
09:34:56 From mike b to Everyone:
They do make rain sensors for homeowner irrigation. They should be required
09:35:36 From Megan Hyman to Everyone:
use of pervious concrete to allow for capture and reuse of rainwater
Groundwater presentation
10:13:16 From Eric Krueger to Everyone:
2k x 2k
10:23:47 From Thomas Walker to Everyone:
15 min break
11:07:58 From Thomas Walker to Everyone:
matt i created a breakout room for you and rbc members online
11:20:24 From Thomas Walker to Everyone:
nevermind on the breakout room
11:22:04 From Jeff Steinmetz to Everyone:
Tom, let us know when we're good to start.
11:22:20 From Thomas Walker to Everyone:
will do
Breakout Discussion Chat (11:23 – 11:33)
11:23:31 From mike b to Everyone:
increasing development near the coast.
11:23:54 From Cara Schildtknecht to Everyone:
lack of SWAM model coverage near the coast

11:25:18 From mike b to Everyone:
ability to "reserve" water with no plan to use it. Makes it hard to model
11:30:31 From mike b to Everyone:
I feel like education and fiscal issues help to maintain stewardship
11:33:35 From Matthew to Everyone:
What Andrea presented earlier is way too technical for most people understand.
Post-breakout Discussion
12:00:31 From Matthew to Everyone:
I am online listening Snipe. Senior Planner with Georgetown County.
12:15:45 From Thomas Walker to Everyone:
meeting adjourned
12:15:48 From Jeff Parkey to Thomas Walker(Direct Message):
Thanks Tom good meeting today and glad to see the groundwater info coming in
12:15:56 From Thomas Walker to Jeff Parkey(Direct Message):
thanks jeff