Lower Savannah-Salkehatchie River Basin Council

January 9, 2025 Meeting Minutes

RBC Members Present: Ken Caldwell, Brad Young, Brandon Stutts, Lynn McEwen, Bill Wabbersen, Pete Nardi, Joey Oswald, Brian Chemsak, Reid Pollard, Kari Foy, Dean Moss, John Carman, Courtney Kimmel, & Sara O'Connor

RBC Members Absent: Taylor Brewer (Valentina Palacio Ruiz, alternate, present), Danny Black (Kathy Rhoad, alternate, present), Leslie Dickerson (Cloe Lemaire, alternate, present), Austin Connelly, Sam Grubbs, Lawrence Hayden, Heyward Horton, Jeff Hynds, Brad O'Neal, Tommy Paradise, & Will Williams

Planning Team Present: John Boyer, Scott Harder, Tom Walker, Leigh Anne Monroe, Brooke Czwartacki, Joe Koon, Jeff Allen, Kirk Westphal, Alexis Modzelesky, Hannah Hartley, Courtney Kemmer, & Alex Floyd

Total Present: 34

1. Call the Meeting to Order (Kari Foy, RBC Chair) 10:00–10:10
    a. Review of Meeting Objectives
    b. Approval of Agenda
        i. Agenda approved
        ii. Ken Caldwell – 1st
        iii. John Carman – 2nd
    c. Approval of December 5th Minutes and Summary
        i. Minutes and summary approved
        ii. Dean Moss – 1st
        iii. Ken Caldwell – 2nd
    d. Newsworthy Items [**Discussion Item**]
        i. January 7th WaterSC open house and listening session
            1. 11 speakers, most speakers/ attendees were council members
            2. C: WaterSC is grounded by the work the river basins are doing
            3. Next water SC meeting is next Thursday
            4. Report due at the end of the month
        ii. Drought tabletop exercise
            1. Climate office organizing
            2. 3/5
            3. First time in 5 years
            4. RSVP
            5. 9-5
        iii. SRS tour date options
            1. 4/2 and 4/22 work best for everyone
            2. Probably best to not have 2 things back-to-back
            3. Submit info and preregister

2. Public and Agency Comment Period (John Boyer) 10:10–10:15
    a. Guests from Weyerhaeuser in attendance
    b. No public comment
    c. No agency comment

3. December Meeting Review (John Boyer) 10:25–10:35
    a. Policy, legislative and regulatory recommendations

b. Consensus-based RBC policy recommendations
    i. Improve the current laws that allow for regulation of water use so they are effective and enforceable
    ii. SCSWWPURA should allow for reasonable use criteria to be applied to all surface water withdrawals like those that currently exist for groundwater withdrawals
    iii. Water planning at RB and state level should continue
    iv. SC legislature should establish a grant program to help water users implement the actions and strategies identified in the legislatively approved SWP
    v. Water withdrawal permitting process should specifically assess the permit application's alignment with the legislatively approved SWP
c. Policy discussions in the parking lot
    i. Collaborative basin planning with GA
    ii. Whether water law/ regulations should distinguish between registrations and permits?
    iii. Is there value in distinguishing between small and large agricultural operations for planning and permitting?
    iv. Revisit next month
    v. C: clarify 3rd one- family-oriented ag business vs large corporate ag business
    vi. C: most speakers at WaterSC meeting represented multigenerational farming

4. Groundwater Demand Projections (Scott Harder, SCDES) 10:35–11:00
    a. Projections vs forecasts
        i. Forecasts: educated guess, based on expected conditions and actions, timeframe limited by predictability of future conditions, aim to be accurate
        ii. Projection: extrapolation of trend, based on hypothetical scenarios, timeframe can extend beyond the limits of effective forecasting, aim to be informative
    b. Projection methodologies
        i. Projected demand= baseline demand X driver variable
        ii. Baseline demand: either monthly median water demands or maximum monthly water demands
        iii. Moderate projection: monthly median withdrawal volumes, moderate growth rate
        iv. High growth: monthly median withdrawal volumes and aggressive growth rate
        v. High demand: monthly maximum withdrawal volumes and aggressive growth rate
        vi. Q: what's the geographic basis on which those are things, is it the basin as a whole or is it sections of the basin? HHI for example, growth rate is significant.
        vii. A: Next Slide we'll get into growth rates.
    c. Driver variables
        i. Public water supply: population
        ii. Manufacturing/ industry: economic growth
        iii. Thermoelectric power: electricity production
        iv. Agriculture/ golf courses: irrigated acres
    d. Public water supply- baseline demands
        i. Average daily per capita water demand

ii. Example

e. Population projections
    i. Moderate projection scenario
    ii. High growth and high demand scenarios
f. Manufacturing- driver variables
    i. Moderate projection scenario
    ii. High growth/ high demand projection scenarios
    iii. Actual water demand for many manufacturing sectors has declined as industrial processes become more efficient and manufacturers develop higher-value products
    iv. Haven't considered data centers
        1. C: have 3 facilities we're adding that are peaking units that don't use a lot of water.
        2. Can do what-if scenarios
    v. Table of manufacturing growth rates
        1. National
        2. LSS
g. Agricultural growth rates
    i. Moderate scenario: 38% over 50-year planning horizon
    ii. High growth/ demand: 44% over 50-year planning horizon
h. Thermoelectric, golf, mining, and other categories
    i. No projected growth
    ii. Moderate and high growth- monthly median demand
    iii. High demand- monthly maximum demand
    iv. Q: need to account for GA side too
        1. Good to reach out to counterparts in GA
i. Groundwater projections- LSS combined
    i. Moderate demand: 26% increase, high growth: 53% increase, high demand: 133% increase
    ii. High demand is upper limit
    iii. C: more likely case is that it rises gradually A: depends on droughts
    iv. Q: do we have a realistic estimate of the amount of water that's being pumped by people who are using less than permitted? A: don't have a good number. Seems to be a small percentage of overall water use
        1. Could be a recommendation to look into it
j. Groundwater projections by sector- LSS combined
    i. Public water supply
    ii. Agriculture
    iii. Industry
    iv. Golf course
        1. Getting more efficient with water use, not many new courses being built
    v. Thermoelectric power
k. Groundwater projections by county- LSS combined
    i. Assume future use will be similarly proportioned to regular use, might not be true
    ii. Q: bottom says MGM but MGD acronym. A: typo

l. Questions
    i. C: something missing is the what-if scenario for economic development that could occur and cause additional demand on public water supply. A: when projecting manufacturing growth, using existing industry

Break *11:00–11:10*

5. Potential Impact of Groundwater Demand Projections on Groundwater Resources and Availability (Brooke Czwartacki, SCDES) 11:10–12:00
    a. Reported water withdrawals LSS
        i. 20 years of aquifer use
        ii. Groundwater and surface water (not energy)
    b. Groundwater evaluation
    c. 2023 reported water withdrawals- groundwater
        i. Surface water/ groundwater excluding energy is a 48/52 split within the basin
        ii. Water supply is pretty common throughout the basin
    d. Reported groundwater withdrawal- LSS
        i. Public water supply
            1. Q: do we know the population increase for public water supply? A: not included
        ii. agricultural irrigation
            1. projected to increase
        iii. Industrial supply
            1. Y-axis is smaller than others
    e. Largest groundwater users
        i. Largest are water supply and irrigation
    f. 2023 reported groundwater use by aquifer in LSS map
        i. 6 major aquifers
    g. Upper and Middle Floridan Aquifer
        i. Minor head differences
        ii. Primarily used for agriculture, water supply, and golf courses
        iii. Water level decline since predevelopment is 25-45 ft and is concentrated in southern part of the basin
    h. Upper Floridan Aquifer
        i. Water levels
        ii. Cone of depression pulled contours and reversed flow
        iii. USGS report
        iv. Q: can you measure the supply of the aquifers/ how much you can take out without degrading it? A: heterogeneous, different clay layers. Can measure a volumetric amount of the aquifers but some uncertainty. Hopefully will have a better tool next iteration. Aquifer constantly growing
        v. C: if the state allowed saltwater injections to push it back, there could be substantial process. A: need cooperation from GA. Water Reuse Association
        vi. Q: Beaufort/ Jasper has a fairly significant active storage and recovery program. Are withdrawals from the storage recovery program counted? A: if withdrawing more than injecting, have to report

vii. C: change from around 2000. A: around 1999 started using surface water from Beaufort/ Jasper, making aquifers more stable

i. Public Water Supply: Beaufort/ Jasper counties
    i. Where is water coming from: mix of ground and surface
    ii. Demand increasing in Upper and Middle Floridan and stable in Gramling
    iii. Supply side management- conjunctive services and reverse osmosis
    iv. HHI capped at 9.7
j. Groundwater projections- Beaufort County
    i. Moderate demand: 33% increase, high growth: 60% increase, high demand: 80% increase
    ii. Plan for high-demand scenario- have extra water
    iii. Population is expected to increase
k. Groundwater withdrawals for public supply- HHI, Beaufort County
    i. South Island PSD
    ii. 2002-2023: use looks flat, Gramling uptick until 2010, decreased after 2012 as Middle Floridan added
l. Upper and Middle Floridan Aquifer: HHI, Beaufort
    i. Stable over time
m. Gramling Aquifer: HHI, Beaufort
    i. V deep, a lot of pressure
    ii. Consistent drop, then stabilized
n. Groundwater Projections for agricultural irrigation- Hampton County
    i. Moderate demand: 16% increase, high growth: 19% increase, high demand scenario: 128% increase
    ii. Lots of little users
    iii. Q: map shows all sectors? A: is all sectors, but found users and locations that are represented. Trying to look by aquifer. Looking at demand projections for ag sector for Hampton County
o. Agricultural water use Upper and Middle Floridan aquifers- Hampton County
    i. Spatially limited by wells in baseline network
    ii. A lot of variability
    iii. Water use affects water levels
p. Upper and Middle Floridan Aquifer: Lake Warren State Park, Hampton County
    i. Seasonality, recharges well but is affected by drought
q. Gordon Aquifer
    i. Used to be mapped as a part of the Floridan
    ii. Primarily for agriculture, water supply and industry, and some smaller users
    iii. Water development declines between 25-45 feet at the coast
r. Groundwater Projections for agricultural irrigation- Colleton County
    i. Moderate demand: 100% increase, high growth: 133% increase, high demand: 267% increase
s. Agricultural water use Gordon aquifer- Colleton County
    i. Don't see huge drops
    ii. Q: what could demand projections go up to? A: 11 MGD
    iii. Q: do you have monitors? A: have 1
t. Crouch Branch Aquifer

i. Primarily used for agriculture and water supply
ii. Declines of 25-50 ft since predevelopment, but few wells

u. Groundwater Projections for agricultural irrigation- Allendale County
i. Moderate demand: 28% increase, high growth: 33% increase, high demand: 120% increase

v. Agricultural water use Crouch Branch aquifer- near town of Allendale, Allendale County
i. Steady declines
ii. Q: we don't know if it's a 2% or 40% impact in the aquifer? A: no but we can look at water changes
iii. C: don't know how strong of trend it is because increased reporting
iv. C: have to factor water use and long-term water trends. A: have additional data. As we get more wells, we get more data
v. Q: at what point should we be concerned with some of these drawings? A: can look at the framework to see where the aquifers are. When we pull water levels below the top of the confining unit, we get problems. Model would have done it. Floridan shows management strategies that have been employed
vi. Q: have we seen any subsidence anywhere? A: not actively monitoring it in relation to groundwater withdrawal
vii. Q: do you know the sea level rise? A: 3.18 mm right now

w. Groundwater Projections for industrial supply- Allendale County
i. Moderate demand: 42% increase, high growth: 257% increase, high demand: 328% increase
ii. Demand is small here
iii. Don't know what future industries are coming to SC

x. industrial water use Crouch Branch aquifer- near town of Martin, Allendale County
i. decline of water use because of efficiency of plants
ii. Q: is it just one user? A: don't have enough wells
iii. C: reasonable recommendation to be more scientific about well monitoring. A: working on drilling a well in Lexington County
iv. C: tell us where you think the wells should be. A: can give general location but hard to find land where people allow us to drill
v. C: this slide says we have a problem when everything else says we don't. not a good example

y. McQueen Branch/ Charleston/ Gramling aquifers
i. Primarily used for water supply, industry and golf
ii. Minor declines in water levels

z. Groundwater Projections for public water supply- Aiken County
i. Moderate demand: 8% increase, high growth: 58% increase, high demand: 83% increase
ii. Q: how do you account for data from a well drawing from 2 aquifers? A: model would take care of. Could try to merge out. Don't allow for newly constructed wells to be cross-streamed
iii. Q: when was the change made? A: around 2000, but would have to look up

aa. Public water supply use Crouch Branch and McQueen Branch aquifers- Aiken County
i. A little variability
ii. Well in Aiken

bb. Observations
    i. Under current demand, aquifer levels are generally stable, declines are associated with past drought conditions and in and out of basin demand
    ii. Largest water users in LSS are public water supply in Beaufort and Aiken counties, water demand is expected to increase, supply-side management should be continued
    iii. Agricultural irrigation is expected to increase in mid-basin counties, monitoring wells are limited
    iv. Industrial supply is expected to increase in Allendale
    v. First cut, seeking input into work

cc. Questions
    i. Q: communicate with GA about water use in Savannah. What GA is doing is affecting us. A: water quality might be a bigger concern than quantity. Long-range plan for the Hyundai plant to tap into Savannah, so they're going to put an intake on the Savannah to help meet demands. Don't know when it's going to happen
    ii. C: City of Savannah and Savannah Metro historically have withdrawn all of the water in the downtown area
    iii. C: state should actively pursue a relationship

Lunch *12:00–12:25*

6. Discussion, Selection, and Prioritization of Water Management Strategies (John Boyer) [**Discussion Item]** 12:25–1:50
    a. Groundwater
        i. Brooke can come back in 3 weeks with more info/ different presentation
        ii. Send out the slides after the meeting
        iii. How can we make groundwater meaningful without a model
        iv. Capacity use areas do groundwater management plans and groundwater evaluation reports every 5 years
        v. Brooke is looking at projected demands in different scenarios
        vi. Can rely on what DES has done
        vii. We're saying what strategies we think are going to be needed in the future.
        viii. Q: are we compartmentalizing strategies based on sectors? A: for demand side strategies, yes. For supply side strategies, they are similar
        ix. Q: have we agreed on goals or objectives? A: good way to approach it
        x. Q: need the study done so we can quantify, but does it do anything? Good ideas but limited data. Want to do groundwater modeling. A: make recommendation that the groundwater modeling continues to be funded and be completed, and collaborate with GA
        xi. Q: do you need more technical info to be able to recommend strategies? A: need a model and more wells.
        xii. Potential recommendations: need more monitoring data, need more wells, need model, need collaboration with GA, saltwater intrusion
        xiii. C: could pull more hydrographs together doesn't have to be a presentation.
        xiv. Q: do you think the hydrographs would lead to different recommendations? A: not necessarily. Shouldn't skip over what's going on in the middle of the basin

xv. C: don't know enough in many areas but don't perceive a crisis in other parts of basin. Main focus should be on HHI
xvi. C: process is to continue after a couple years
xvii. Q: is there a record of unreported wells? A: can get that info, some private because they're at homes. Can do a GIS analysis
xviii. Have had people call and say that their wells have gone dry
xix. Don't need more specific info from Brooke for next meeting

b. Planning framework
    i. Planning framework definitions
        1. Surface water management strategy- strategy proposed to eliminate a shortage, reduce a shortage, or increase surface water
        2. Groundwater management strategy- addresses a groundwater area of concern or shortage
            a. Should select areas of concern
                i. HHI is a victim of saltwater intrusion
                ii. C: nervous, strategy shouldn't be to accept the Savannah River because it comes with a lot of problems; economics, PFAS, drought
                iii. C: could tweak definition
                iv. Other basins had areas of concern come up because of modeling
                v. C: now HHI is actively being managed
                vi. Don't have to define an area of concern
                vii. C: let you know about new applications
                viii. Suggest GA coastal area as area of concern
                ix. Q: do we limit GA coastal area to be a groundwater area of concern or set it as a general area of concern? A: can write it up that Savannah River is a region of interest for both surface and groundwater and needs solutions for both
        3. Groundwater area of concern- area in the coastal plain, designated by an RBC where groundwater withdrawals from a specified aquifer are causing or expected to cause unacceptable impacts to the resource or public health and well-being.
    ii. Brainstorming notes
        1. Existing strategies in the basin
            a. Supply side: water recycling, water reuse, reclaimed water, stormwater collection, conjunctive use, interconnections, regionalization, interbasin transfers, ASR, Army Corps flow strategy, aerial or satellite protection
            b. Demand side
                i. Q: what do building code requirements mean? A: Beaufort/ Jasper has requirements as a wholesaler of requirements
        2. Effectiveness of existing strategies
            a. Reclaimed water is very effective for HHPSD
            b. Regionalization is effective
            c. Outreach not effective relative to other utilities like electricity
        3. Can existing strategies be expanded
            a. Reclaimed water where it makes sense

b. Having enough water to support industrial growth
c. Prioritizing strategies
d. State funding needed

4. What strategies are relevant in the LSS and should be further evaluated
    a. Ag is doing a good job with efficiency, mentioned in WaterSC listening session
    b. Public water supply
    c. Demand side
    d. Federal money

iii. Water management strategies
1. Important considerations
    a. Water users have different resources
    b. Not every strategy is applicable to every water user
    c. Increasingly important to use water as efficiently as possible
    d. Adaptive management plan: only recommended if triggers occur or conditions change
2. Adaptive management- framework that can be used to implement options as the future unfolds in a structured way to avoid the pitfalls of underperformance or overinvestment
3. What are some uncertainties that may impact LSS?
    a. Climate, drought, flood
    b. Neighboring states water use
    c. Population/ economic growth
    d. Industry/ new demand sources
    e. Groundwater data
    f. Regulation- politics and governance
    g. Quality (spills, saltwater intrusion)
    h. Natural disasters
4. Common uncertainties
    a. Agricultural output
    b. Heir's property
    c. Technology change
    d. Municipal water use
    e. What strategies are more effective in addressing some of these uncertainties?

iv. What strategies should be recommended as a part of the RBP?
1. Send thoughts and ideas ahead of meeting
2. Supply-side strategies already in use
    a. Water reuse
    b. Retention of stormwater
    c. Conjunctive use
    d. Interconnections/regionalization
    e. Interbasin transfer
    f. ASR
    g. Should any of these strategies be prioritized?
    h. Other supply side strategies that should be recommended?
    i. Which strategies would be most useful to adapt to changing conditions?
3. Demand strategies
    a. Irrigation portfolio (ag and golf courses)

b. Municipal portfolio
c. Industrial and energy portfolio
d. Will send out slides after meeting

7. Upcoming Schedule and Discussion Topics 1:50–2:00
    a. 2/6/25
    b. Finalize water management strategies
    c. Plan recommendations
    d. Stay on schedule, may have a draft plan by June
    e. Send out chapters in the next couple months
    f. Meeting location: will keep in touch

Meeting adjourned: 1:55 pm

Motion to Adjourn – 1st – Dean Moss and 2nd – Joey Oswald

Minutes: Taylor Le Moal and Tom Walker

Approved: 2/6/25