Upper Savannah River Basin Council

March 13, 2024 Meeting Minutes

RBC Members Present: Scott Willett, Melisa Ramey, Katie Hottel, Daniel Milam, Mark Warner, Dan Murph, Alan Stuart, Cheryl Daniels, Harry Shelley, John Hains, Chuck Connolly, Jon Batson, Reagan Osbon, Jill Miller, Mack Beaty, Cole Rogers, Tonya Winbush, Billy Owens, Jeff Phillips, Will Williams, & Tonya Bonitatibus

RBC Members Absent: Tim Hall & Carl Price

Planning Team Present: Ashley Reid, John Boyer, Scott Harder, Leigh Anne Monroe, Tom Walker, Andy Wachob, Hannah Hartley, Alexis Modzelesky, & Jeff Allen

Total Present: 42

1. Call the Meeting to Order (Jill Miller, RBC Chair) 10:00–10:10
    a. Review of Meeting Objectives
    b. Approval of Agenda
        i. Agenda approved
        ii. Scott Willett – 1st and Mack Beaty – 2nd
    c. Approval of February 14th Minutes and Summary
        i. Minutes approved
        ii. Mark Warner – 1st and Daniel Milam – 2nd
    d. Announcements and Housekeeping Items
        i. Online attendees

2. Public Comment (Ashley Reid) 10:10–10:15
    a. Public Comment Period
        i. none
    b. Agency Comment Period
        i. none

3. February Joint RBC Meeting Review (Ashley Reid and John Boyer) 10:15–10:30
    a. Army Corps of Engineers
    b. Send an email if there's something you want Corps to talk about
    c. Greenville won best-tasting water

4. Regional Economic Analysis of Changing Lake Levels - Lake Hartwell (Dr. Jeff Allen, Clemson) 10:30–10:45
    a. Where we like lake levels to be: 660.55 ft above MSL
    b. Where we were 12/08, 637.53 ft above MSL
        i. Hartwell 660 Coalition- wanted to keep lake Hartwell as full as possible
    c. Research question: do changing lake levels have a measurable economic impact on the 6 counties that border Lake Hartwell?
    d. Data examined: monthly data 1998-2009, lake, real estate and gross retail sales data
        i. Gross retail sales data- monthly totals. Lake and control counties
        ii. Lake Hartwell real estate transactions
    e. Research approach- general-> specific

f. Observation of data
    i. Temperature and recreation use- more usage when its warm
    ii. Lake access parcel transactions
    iii. Gross retail sales
        1. Restaurants
        2. Bars
        3. Boat and other recreational dealers
g. Linear regression analysis
    i. Lake level and recreational use
        1. A 1-foot increase in Lake Hartwell translates to 21200 more visitors per month on average. 2.5% of average monthly visitors
    ii. Duke Energy Lake Keowee Visitation Survey (2008)
        1. USACE recreation facilities on Lake Hartwell could lose monthly 6950 nonlocal visitors per foot decrease in lake level
    iii. Gross sales and lake level
        1. Some businesses (boat sales) affected positively by lake levels, some businesses (restaurants) impacted negatively
    iv. Lake level and real estate transactions
        1. Negative movement with real estate transactions
h. Economic impact of changing lake levels on the region
    i. Regression analysis +REDYN economic model
    ii. Overall negative economic output caused by low lake levels
    iii. Output impact of low water levels is negative, total county output is positive, small negative impact as a % of total county output
        1. Overall, counties are robust and can handle impact of lake levels lowering. Good news!
        2. Lake is managed differently now than they were then
i. Questions
    i. Q: When Lake Hartwell was conceived there was a cost-benefit study, was recreation impact considered?
    ii. A: Another group had done an economic study of Lake Lanier and found it contributed 100s of millions of dollars to the local economy. Different type of study run.
    iii. C: Recreation was not part of the justification. Power, navigation, and flood control were part of the justification.
    iv. C: Tourism and recreation is a positive consequence/externality.
    v. C: A lot of discretionary spending on lakes.
    vi. Q: Inference about users on Keowee and assumption is that those are the same. How do you define a recreational visit for property owners? That's how Hartwell pumps its visit numbers up.
    vii. A: Data directly from Duke Energy - their surveys.
    viii. C: Keowee has fewer people per on the shoreline.
    ix. C: Counting cars going into the entrance - how they got visit numbers.
    x. Q: Did regression give error bars or correlation coefficients?
    xi. A: It was significant. Did have significant relationships. Things that were not significant were not fed into REDYN model
    xii. C: Smaller counties would have more of an impact from tourism than larger counties would
    xiii. Q: What was R^2?
    xiv. A: Unsure.

xv. Q: Why Oconee and Stephens have positive output impacts?
xvi. A: People could be doing other things not lake-related.
xvii. Q: What was the biggest category that was impacted?
xviii. A: Real estate or restaurants.

Break *10:45–11:00*

5. Preliminary 2070 Moderate and High Demand Scenario Results and Review of updated UIF, Current Use, and P&R Scenarios (John Boyer) 11:00–12:00
    a. January- reviewed initial modeling results of unimpaired flow scenario, current use scenario, permitted and registered scenario
    b. Surface water scenarios- 2070
        i. Unimpaired flow
        ii. Current surface water use
        iii. Permitted and registered
        iv. Moderate water demand projection
        v. High water demand projection
    c. Model updates (since January)
        i. Added stage storage curves for Lake Tugalo and Lake Yonah
        ii. Updated stage storage and stage surface area curves for Bad Creek Reservoir
        iii. Smaller updates
    d. USRB summary of average annual surface water demands by scenarios
    e. Current use scenario
        i. No shortages
    f. Permitted and registered scenarios
        i. 4 shortages, not many compared to other river basins
        ii. Q: Vulcan in Liberty? Or Anderson?
        iii. A: Not sure
    g. 2070 moderate and high demand scenarios
        i. USRB summary of average annual surface water demands by scenarios
            1. Net consumptive use for thermoelectric/ nuclear power
        ii. Notes on Greenville water demands
            1. Q: Can we suggest that if you reach all of the demand, the discharge needs to come back into the basin?
            2. A: Yes, if you think it's important
            3. C: All of the water goes through ReWa
            4. C: Six Mile, Pickens, etc are building their own plant
        iii. Savannah River Basin Surface Water Model framework
            1. Aggregated GA side withdrawals
            2. Future demand projections for GA side users
                a. Projected demand through 2060 by county and sector
                b. 2070 demand calculated as a weighted average of the projected growth multiplied by moderate and high demand scenarios
                c. Table of GA side water user 2070 projected demands
                d. C: Cornelia has a request for 6 MGD. Big deal, taps into Atlanta – coming out of the Tallulah.
                e. C: Pickens County Joint System is coming for Pickens and Six Mile.
        iv. 2070 moderate demand scenario

1. No shortages

v. 2070 high-demand scenario
    1. 3 shortages, not too much concern
    2. Q: As expected results?
    3. A: As expected
    4. C: Good to be at the top of the basin

h. Reservoir storage plots
    i. Lake Keowee
    ii. Lake Hartwell
    iii. Q: You're 7 feet off in 2008 it was 637 ft. If demands are less back then it might be off by 7 feet or more. Can we expect a 7 ft differential?
    iv. A: Likely to be less.
    v. C: Part of it might be change in operating.
    vi. Q: Graph of Thurmond?
    vii. A: We did but didn't plot it but we can go back and look at it
    viii. Q: Outside of reservoirs is there anyone who is on impacted streams?
    ix. A: Not a whole lot of surface water withdrawals on the tributaries. Everything seems to point to managing the reservoir for water management strategies.
    x. Q: What percentage of the population isn't reliant on a water utility, private wells?
    xi. A: Don't know, groundwater isn't very reliable in the Upstate.
    xii. C: There are methods to determine that number. Take population minus population served by water districts.
    xiii. Q: If we ran into a drought could these wells run dry?
    xiv. A: Uncertain – site specific.
    xv. C: Recommend putting sensors in those areas to monitor more closely
    xvi. C: Could reach out to Vulcan and Hanson to check on if they have any water concerns
    xvii. Q: Do service areas cover the whole land and people chose to be on wells?
    xviii. A: There are pockets not served by a water utility – Starr Iva provides water for North Abbeville but there are pockets. Groundwater quality is questionable. In 2008 groundwater user's levels were going down and they were looking into public supply

i. Future information
    i. Minimum stream flows
    ii. Safe yield
    iii. Additional scenarios
        1. What if 2007/08 drought continued?
        2. Potential increase in evaporation due to higher temperatures
        3. Sedimentation effects
        4. Q: Hydrology of years in order. Can you run it in more of a statistical approach – Monte Carlo approach possibly?
        5. A: I'll talk to Kirk and the team
        6. Q: US is lowest risk?
        7. A: Compared to Edisto, Broad, and Saluda yes less risk
        8. Q: Can we look at too much water?
        9. A: Can talk about it, not the intention of this process. We don't want to ignore it.
        10. C: Maybe we can look at flood resilience
        11. C: Possible highest loss of life from flooding in the Upstate

12. Q: So the planning framework says we are only supposed to look at drought and not inundation?
13. A: Planning framework says we need to look more at drought
14. C: We could get Hope Warren or Alex Butler from SCOR to present
15. C: Flooding up here is much different. Time is the issue up here – less time and flash flooding
16. C: We'll try and get Hope or Alex to come present

Lunch 12:00–12:30

6. Introduction to Water Management Strategies and Group Breakout Session to Discuss Strategies (John Boyer and Ashley Reid) 12:30–1:50
    a. Introduction to water management strategies
    b. Planning framework definitions
        i. Surface water management strategies
            1. RBP is a collection of strategies supported by data
        ii. Demand side vs supply side
    c. Demand side strategies
        i. Municipal conservation
        ii. Agriculture/ irrigation conservation
        iii. Industrial conservation
        iv. Thermoelectric conservation
    d. Supply side strategies
        i. New or increased storage
        ii. Water reclamation
        iii. Conjunctive use
        iv. Conveyance
    e. Water management strategies from NC, SC, and GA
        i. Cary, NC
        ii. Metro North GA Water Planning District
        iii. Greenville Water
    f. Water efficiency and water loss programs
        i. Georgia Water Stewardship Act of 2010
        ii. Real losses- leakage and overflows
        iii. Data
        iv. Q: Is there feedback about these programs?
        v. A: They're working
        vi. C: A lot of it is low flow fixtures and appliances. There's a push to go vertical in Greenville County
        vii. Catawba-Wateree Water Management Group- multi phased approach to water loss
            1. Charlotte Water associated with half of the loss
        viii. City of Aiken
        ix. City of Orangeburg
        x. Walther Farms
        xi. Dominion Energy Cope Station
        xii. Edisto Basin proposed low flow management strategy
    g. Savannah-Upper Ogeechee water management practices
        i. SUO regional water plan goals
        ii. SUO water management practices
            1. Priority water management practices

a. Demand management
    i. Implement tier 1 water conservation practices
    ii. Encourage tiers 2-4 water conservation practices
    iii. Monitor agricultural use
b. supply management
    i. evaluate/ update local water master plans
    ii. monitor streamflow
    iii. conduct instream flow studies
        1. if model shows there is a challenge, monitor it. Seed grant projects
    iv. increase groundwater supplies
    v. decrease surface water use during low flow periods
c. education practices
    i. develop regional educational programs
    ii. promote coordinated environmental planning
d. Q: WS3 - conduct instream flow studies – ground truth the model results?
e. A: Yes and actually monitor it
f. Q: Could we get a presentation on the program?
g. A: We can definitely do that
h. Q: Stage data or stream flow?
i. A: Stage

h. water planning framework criteria to evaluate water management strategies
    i. effectiveness
    ii. reliability
    iii. permitting/regulatory
    iv. environmental impacts
    v. socioeconomic impacts
    vi. water quality impacts
    vii. RBCs required to use these criteria
    viii. Before next meeting, will send out chapter 6 examples from Broad and Edisto with strategies they used
i. Water management discussion groups
    i. Discussion guide
    ii. Less presenting, more thinking
j. Group reports
    i. Question 1: existing strategies
        1. Greenville water system loss review, current drought management plan, golf courses and industry mindful about water use
        2. Supply side: impoundments, looking at intakes. Pickens regionalization, voluntary low-flow management strategies
        3. Water loss, accessibility to data in SC (DHEC?), ASR? Stream bank recovery, water reuse?, stormwater?, regionalization, building codes?, public education campaigns?, NRCS, drought, management by lakes by USACE is effective, could improve, comprehensive and holistic approach
        4. Groups should have a mix of sectors
    ii. Question 2: effectiveness of existing strategies
        1. Redundancies to reduce cost, differences in cost to maintain systems especially on distribution side, communication, perception matters, need to be proactive

2. Haven't run out of water yet, educational programs/conservation, rebates/ incentives, critical intakes downstream, work with the Corps to adjust their drought plan

iii. Question 3: can existing strategies be expanded?
1. AI, smart technology to detect point of loss, increase in infiltration, overall land use planning

iv. Question 4: what strategies are relevant in the Saluda Basin and should be further evaluated?
1. Not encourage tie in of private wells, interbasin transfer regulations that reflect forecasted needs of basin, returning water withdrawn from Savannah to Savannah, increase water monitoring and make data public, Ag- Conservation irrigation, covering cropping, expansion of easements, drought management plan that align with rest of plan, industry- reuse incentives and water loss controls, alternative energy sources, water smart/ energy smart appliances, sediment management above reservoirs, constant coordination between basin councils

v. Point of exercise was to brainstorm

vi. In moderate/ high demand scenarios, didn't increase discharges

vii. Assumed additional agricultural withdrawals in 3 areas with potential agricultural growth

7. Upcoming Meeting Schedule and Topics (Ashley Reid) 1:50–2:00
   a. Topics
      i. Safe yield analysis of major reservoirs
      ii. Daily time step results
      iii. Selection of locations for assessing flow ecology relationships
   b. Discussion items
      i. Water management strategies
      ii. Drought management strategies
   c. Survey after each phase
   d. May add SC Office of Resilience
   e. Flow release videos

Meeting adjourned: 2:00 PM

Minutes: Taylor Le Moal and Tom Walker

Approved: 4/10/24

RBC Chat:

10:00:42 From Thomas Walker to Everyone:

we are probably going to get started a few mins late as people are getting back from the dam/USACE gate test

10:01:11 From cconnolly to Everyone:

Thank You for the update

10:41:52 From Thomas Walker to Everyone:

10 min break

11:04:03 From Jeffrey's iPhone to Everyone:

Our permit with Duke requires 50 of the MGD of our 150 MGD to remain in Pickens County

11:35:09 From Thomas Walker to Everyone:

break until 12 o clock - 25 mins or so

13:41:14 From Jeffrey's iPhone to Everyone:

I believe it's just a check box for water audit

14:00:19 From Thomas Walker to Everyone:

meeting adjourned