Edisto River Basin Council
Phases 2/3 Progress Report

February 2022

1.0 Introduction

The South Carolina State Water Planning Framework requires River Basin Councils (RBCs) to prepare and submit progress reports after each phase of the river basin plan development. This progress report covers portions of Phases 2 and 3 of the Edisto River Basin planning process spanning January 7, 2021 through February 18, 2022.

This progress report summarizes the activities and accomplishments of Phases 2 and 3, including key milestones reached, and identifies existing and potential issues regarding schedule. Because of the delays updating and applying the Groundwater Flow Model of the South Carolina Coastal Plain to assess water availability, work associated with Phase 3 was also performed during this period. This included the evaluation of surface water management strategies. Anticipated challenges as the RBC moves further into Phase 3 of the planning process are also identified.

2.0 Activities and Accomplishments

2.1 RBC Meetings

Eleven RBC meetings were held during this planning period. The meetings covered activities associated with Phase 2. The final five RBC meetings during this period included evaluation of surface water management strategies, which as defined by the Planning Framework, are part of Phase 3. Meetings were held monthly, except during April and July 2021, when two field trips were conducted in place of the regular RBC meetings. Three of the 11 meetings were conducted virtually using the Zoom platform. Meeting durations ranged from 2 to 4 hours.

Between 17 and 21 RBC members attended each meeting. There was a total of 26 unexcused absences during the 11 RBC meetings. Unexcused absences occur when neither an RBC member nor their alternate are in attendance. Alternates attended in place of an RBC member in eight instances.

2.2 Phase 2 Objectives

The objectives of Phase 2 were to:

- Select performance measures to evaluate and compare surface and groundwater model results.
- Identify surface and groundwater shortages.
- Consider and designate Reaches of Interests and Groundwater Areas of Concern.
- Form RBC-defined subcommittees if needed.

The objectives of Phase 3 were to:

- Identify and evaluate the effectiveness of water management strategies to reduce or eliminate shortages and enhance water availability.

- Evaluate the feasibility of water management strategies, including assessing costs and benefits.
- Select and prioritize the water management strategies.
- Finalize Reaches of Interests and Groundwater Areas of Concern.

2.3 Accomplishments

Selection of the Chair and Vice Chair Positions and Establishment of Member Term Lengths

During Phase 1, the RBC decided to postpone electing the RBC leadership positions until in-person meetings were possible. The first in-person meeting was held on May 26, 2021 and the RBC elected Hank Stallworth as the Chair and Landrum Weathers as the Vice Chair. Term lengths of 2, 3 and 4 years were randomly assigned to each member.

Formation of Subcommittees

The RBC formed three subcommittees: (1) a Surface Water Subcommittee, (2) a Groundwater Subcommittee, and (3) a River Basin Plan Subcommittee. Each subcommittee is comprised of five RBC members. Three RBC members serve on two different subcommittees. The Surface Water and Groundwater subcommittees each elected a Chair and Vice Chair and met two times to review water availability modeling results. The River Basin Plan Subcommittee began reviewing a draft of Chapter 1 of the River Basin Plan, and will select a Chair and Vice Chair at their first meeting planned for the week of February 22, 2022.

Information Sharing

Several information presentations were delivered to the RBC during the 11 meetings over this reporting period. Presentation topics included:

- Groundwater resources and the hydrogeologic framework of the Edisto basin
- How land use changes impact water supply and recharge
- A review of studies measuring differences in evapotranspiration and the water budget for forested and agricultural land
- Agricultural research focusing on irrigation efficiency
- River basin planning examples from Georgia
- Updates to the Planning Framework
- Relationships between streamflow and aquatic health
- Groundwater Management Plans for the Capacity Use Areas

Field Trip to Walther Farms and Aiken State Park

In April 2021, the RBC members participated in a field trip to Walther Farms near Windsor. RBC member Jeremy Walther presented on center pivot irrigation audits performed under the South Carolina Mobile Irrigation Lab Pilot Study. The RBC members visited the Walther Farms surface water intake structure on the South Form of the Edisto River and toured the pump house. The RBC also witnessed a center pivot spray irrigation system in action; learned about nozzle technology; learned how Dammer Dikers improve water, nutrient, and oxygen uptake while limiting runoff; and saw examples of cover cropping. Following lunch at Aiken State Park, Joe Gellici of SCDNR discussed the history of groundwater monitoring wells

located at the park and discussed topics including water level declines due to pumping and droughts, recharge, land development, impermeable surfaces, saltwater intrusion, surficial wells, and contamination.

Field Trip to Canoe the South Fork Edisto River and See the Charleston Water System Intake at Givhans Ferry State Park

In July 2021, the RBC canoed a 6 mile stretch of the South Fork Edisto River from Simmons Boat Landing to Weeks Landing, adjacent to Colleton State Park. Following the canoe trip, RBC members visited Givhans Ferry State Park where they learned about the history and importance of Charleston Water System's water intake and tunnel.

Assessment of Surface Water Availability

CDM Smith completed model simulations to assess surface water availability for the following scenarios:

- Current Surface Water Use
- Permitted and Registered Surface Water Use
- Business-as-Usual Water Demand Projection
- High Demand Water Projection
- Unimpaired Flow

The Business-as-Usual and High Demand water projection model scenarios were performed using projected water demands for 2030, 2050 and 2070. Water shortages were identified, and performance measures were calculated and presented to the RBC to facilitate comparisons between scenarios. Additional analysis was performed to demonstrate that most of the dozen or so modeled shortages in the higher order streams that are tributary to the North and South Fork Edisto River are not real shortages. This is because the presence of numerous impoundments that provide storage but were not included in the surface water model.

The RBC considered but did not select any Surface Water Conditions or Reaches of Interest. The RBC agreed to revisit the idea of a Surface Water Condition once all of the groundwater availability assessment modeling was completed.

Evaluation of Surface Water Management Strategies

CDM Smith identified a portfolio of supply and demand-side surface water management strategies and evaluated the effectiveness of these portfolios of strategies to reduce or eliminate shortages and enhance water availability. Demand side strategies that were evaluated using the model included: (1) the existing drought management plans of Aiken, Orangeburg, Batesburg-Leesville, and Charleston Water Systems; (2) a portfolio of municipal water conservation measures; and (3) a portfolio of agricultural water conservation measures. The cumulative impact of these strategies was also evaluated. Supply-side strategies evaluated included: (1) meeting 20 and 50 percent of surface water demands during low flow periods by switching to groundwater (i.e., conjunctive use); (2) small impoundments to increase storage; and (3) a reservoir that would fill when excess surface water was available, and empty during low flow conditions. The results of the water management strategies evaluations were presented to the RBC. Work was initiated to assess the feasibility of the modeled strategies.

Assessment of Groundwater Availability

The assessment of groundwater availability was delayed while SCDNR and SCDHEC worked with the United States Geological Survey (USGS) to correct pumping assignments in the groundwater model, and the USGS resolved model convergence issues. The review of early groundwater model output identified discrepancies in assigned pumping, versus model reported pumping. These issues were ultimately resolved after adjusting how pumping was assigned to wells which spanned multiple aquifers; removing withdrawals that were associated with mine dewatering operations; and other means. Model convergence issues were resolved by slightly increasing recharge rates during model stress periods with

low assigned recharge. During this reporting period, the USGS completed model simulations to assess groundwater availability for the following scenarios:

- Predevelopment Groundwater Use
- Current Groundwater Use
- Permitted Groundwater Use

2.4 Activities not Completed

Activities outlined in the Planning Framework for Phase 2 that were not completed included completing the Business-as-Usual and High Demand groundwater demand scenarios and identifying groundwater shortages and Groundwater Areas of Concern. These activities will be completed during the RBC meetings planned for March 2022 and if needed, April 2022.

2.5 Feedback from the RBC

During this reporting period, the RBC members were asked to complete short survey to determine how well the process metrics selected by the RBC during Phase 1 were being met. A summary of the RBC feedback on meeting the process metrics is provided below.

- Most members (67 percent) strongly agreed or agreed (28 percent) that meeting timelines were being adhered to. One member commented that more time should have been allotted to facilitate conversations and have break-out sessions.

- Most members strongly agreed (78 percent) or agreed (3 percent) that information used and generated during the planning process is shared openly, publicly, and is easily accessible. One member requested that paper copies of the technical slides be provided.

- Most members strongly agreed (56 percent) or agreed (22 percent) that RBC meeting agendas are focused and promote efficient and productive meetings. Comments on this question included the suggestion that the RBC needs to cut down on the “why not” discussions that have nothing to do with the questions at hand; that the RBC is spending too much time going deep into the learning and should rely more on the experts; and that it would be beneficial to have the agenda and meeting materials more in advance of the meeting.

- Five members (28 percent) strongly agreed and 8 members (44 percent) agreed that the RBC can effectively consider, digest, and understand technical information through presentations, discussion, and self-study. Another 5 members (28 percent) neither agreed nor disagreed with this assessment. Some RBC members commented that the technical information can be difficult to understand, but they recognized it is needed, and that self-study is essential.

- Most members strongly agreed (44 percent) or agreed (17 percent) that decisions are made using best available scientific, technical, legal, or other objective criteria. Members commented that the RBC really has not made any meaningful decisions yet.

- Most members strongly agreed (39 percent) or agreed (39 percent) that controversial issues are discussed openly in a respectful manner, and multiple options for resolution are considered.
- Most members strongly agreed (67 percent) or agreed (17 percent) that information is presented in an unbiased manner. Three members disagreed (17 percent).
- Most members strongly agreed (61 percent) or agreed (22 percent) that RBC members are provided equal opportunity to be heard and express their interests, ideas and concerns. Several members commented that everyone is given an equal opportunity to speak; however, it is frustrating at times when only the same few RBC members consistently raise their hand to comment.
- Most members strongly agreed (56 percent) or agreed (22 percent) that the use and outcomes of models and other tools to assess water availability and evaluate strategies are appropriately documented.

3.0 Issues Impacting Schedule and Funding

Because of the COVID-19 pandemic, 3 of the 11 meetings were held virtually, and meeting durations were shortened from a planned 4-6 hours to 2-3 hours. When in-person meetings started in May of 2021, the RBC agreed to hold 4-hour meetings. Because of the shorter meetings, it is anticipated that more than 24 meetings will be needed to compete development of the Edisto River Basin Plan.

Issues associated with updating and applying the groundwater model have slowed the planning progress and delayed completion of Phases 2 and 3; however, those issues appear to have been resolved. It is expected that the Phase 2 milestones will be hit in March, and the evaluation of groundwater management strategies (Phase 3) will commence in April.

No significant issues have been identified that impact funding of the planning process through completion of Phase 4.

4.0 Challenges

Through the survey and meeting discussions with the RBC, several on-going challenges have been identified: These challenges include:

- The hybrid meeting format limits necessary interaction between RBC members, since between 3 and 7 RBC members regularly choose to attend the meetings using the virtual option. However, the hybrid option does provide a valuable opportunity for members to still attend the meetings if they are concerned about being exposed to or exposing others to illness, and it allows for other interested stakeholders to watch and listen to the meetings without having to travel and attend in-person. Additionally, the hybrid meetings are recorded and posted to the Edisto Basin Planning website, which provides the opportunity to review meetings after they have occurred.

- The delay in updating and applying the groundwater flow model has also hindered the decision-making process for surface water. The RBC has been reticent to make any decisions on establishing one or more Surface Water Condition, because of uncertainty about current and future groundwater conditions. To help the RBC make the necessary decisions moving forward, the Facilitator will need to (1) make sure the RBC understands what decisions must be made; (2) make sure the RBC understands the results of the water availability modeling and water management strategy effectiveness evaluations; and (3) provide a framework for the RBC to make decisions in a timely manner.