EXECUTIVE SUMMARY

EDISTO RIVER BASIN PLAN 2023

CONTENTS

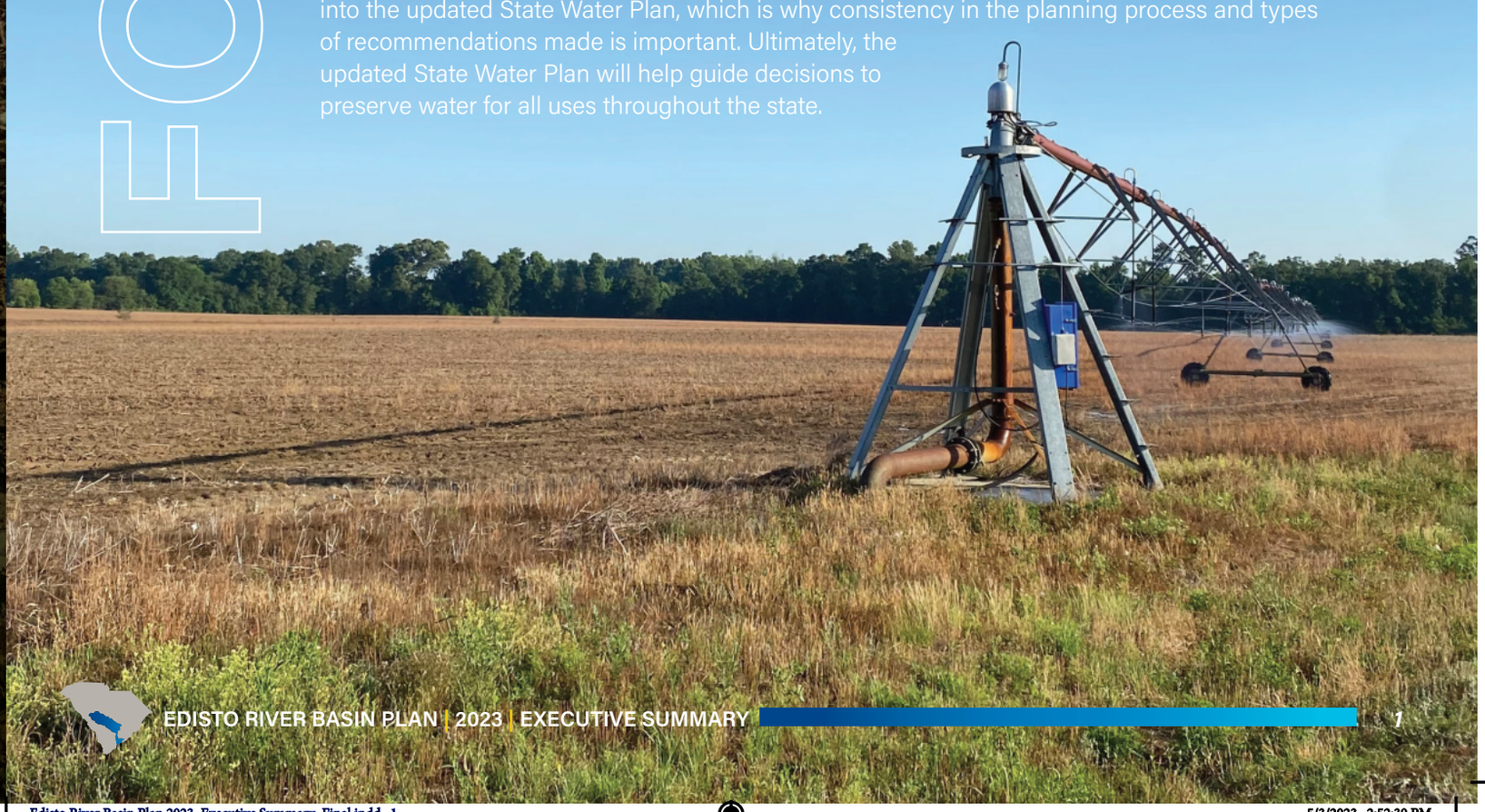
FOREWORD

The Edisto River Basin Plan is the result of years of preparation, work, and contributions from numerous stakeholders with a vested interest in water management. The state began implementing its vision for a comprehensive and actionable water plan in 2014 with the development of surface water quantity models for each of the eight major river basins in the state. This was followed by the update of a detailed groundwater model of the Coastal Plain Aquifer System and the development of methodologies for projecting water demands for all water use sectors. This voluminous preparatory work, grounded firmly in science, now provides or will provide River Basin Councils (RBCs) in all eight basins with the technical information they need to understand water availability, propose and test alternative management strategies, and make concerted recommendations to water users, regulatory agencies, and state legislators on future management practices and policies to manage and protect the resource.

This report constitutes the first of the eight basin plans, and is organized and supported by the work of the State Water Planning Process Advisory Committee (PPAC). This committee participated in a facilitated process to formulate a thorough, practical, and consistent process that is being applied in the different river basins in South Carolina. Published in 2019, the South Carolina State Water Planning Framework now serves as a comprehensive, uniform guide for the RBCs, each charged with developing an understanding of the water resources in their respective basins; identifying the gaps or risks related to current and future water uses; and developing recommended policies, management practices, and legislative considerations "***designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions.***"

The Edisto RBC was the first of the eight RBCs to convene. As the Edisto River Basin Plan is implemented, the Edisto RBC has a continuing responsibility unique to all other RBCs in the state: In addition to continued engagement in Edisto River basin planning, implicit in the State Water Plan update process is to lead by example, share lessons learned, and make suggestions to other RBCs about the planning process and its implementation. This will require coordinated efforts on behalf of the South Carolina Department of Natural Resources (SCDNR) and the Edisto RBC, and creative outreach to engage with colleagues across the state in other RBCs.

The river basin plans are the fourth of a five-step process to update the South Carolina State Water Plan with actionable recommendations and priorities. Collectively, all eight plans will be combined into the updated State Water Plan, which is why consistency in the planning process and types of recommendations made is important. Ultimately, the updated State Water Plan will help guide decisions to preserve water for all uses throughout the state.



Acknowledgements

The Edisto River Basin Council (RBC) consists of the following volunteer stakeholders representing eight different water-interest categories. These individuals spent more than two years sharing their diverse perspectives and offering their expertise, culminating in the development of this River Basin Plan.

Name	Organization	Interest Category
Mark Aakhus	Town of Edisto Beach	Local Governments
Laura Bagwell	Aiken Soil and Water Conservation District	At-Large
Glen Bell	RBM Forestry, LLC	Agriculture, Forestry, and Irrigation
Dr. David Bishop	The Nature Conservancy	Environmental
Dr. John Bass	Retired	At-Large
Joel Duke	Aiken County	Local Governments
Johney Haralson	Bamberg Soil and Water District	Local Governments
J.J. Jowers	Public	Water-Based Recreational
Hugo Krispyn	Friends of the Edisto and Edisto Riverkeeper	Environmental
Alta Mae Marvin	Edisto River Canoe and Kayak Trail Commission	At-Large
Alan Mehrzad	Bamberg Board of Public Works	Water and Sewer Utilities
Eric Odom	Orangeburg Department of Public Utilities	Water and Sewer Utilities
Amanda Sievers	Orangeburg County	Industry and Economic Development
Hank Stallworth	Retired (SCDNR Chief of Staff)	Environmental
Brandon Stutts	Dominion Energy South Carolina	Electric-Power Utilities
Jason Thompson	Charleston Water System	Water and Sewer Utilities
Alex Tolbert	Orangeburg Country Club	Agriculture, Forestry, and Irrigation
Jeremy Walther	Walther Farms	Agriculture, Forestry, and Irrigation
Jerry Waters	Palmetto Realty and Land Co.	At-Large
Landrum Weathers	Weathers Farms/Circle W Farms	Agriculture, Forestry, and Irrigation
Will Williams	Western South Carolina Economic Development Partnership	Industry and Economic Development

The Edisto RBC would like to thank the following individuals and organizations who contributed to the development of this River Basin Plan by providing technical presentations and information, meeting coordination, modeling, administration, and other support services.

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Gregory Cherry
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Clemson University
Dr. Jeff Allen
Chikezie Isiguzo
Dr. Kendall Kirk
Dr. Brandon Peoples
Kaleigh Sims
Dr. Thomas Walker
Andrew Waters

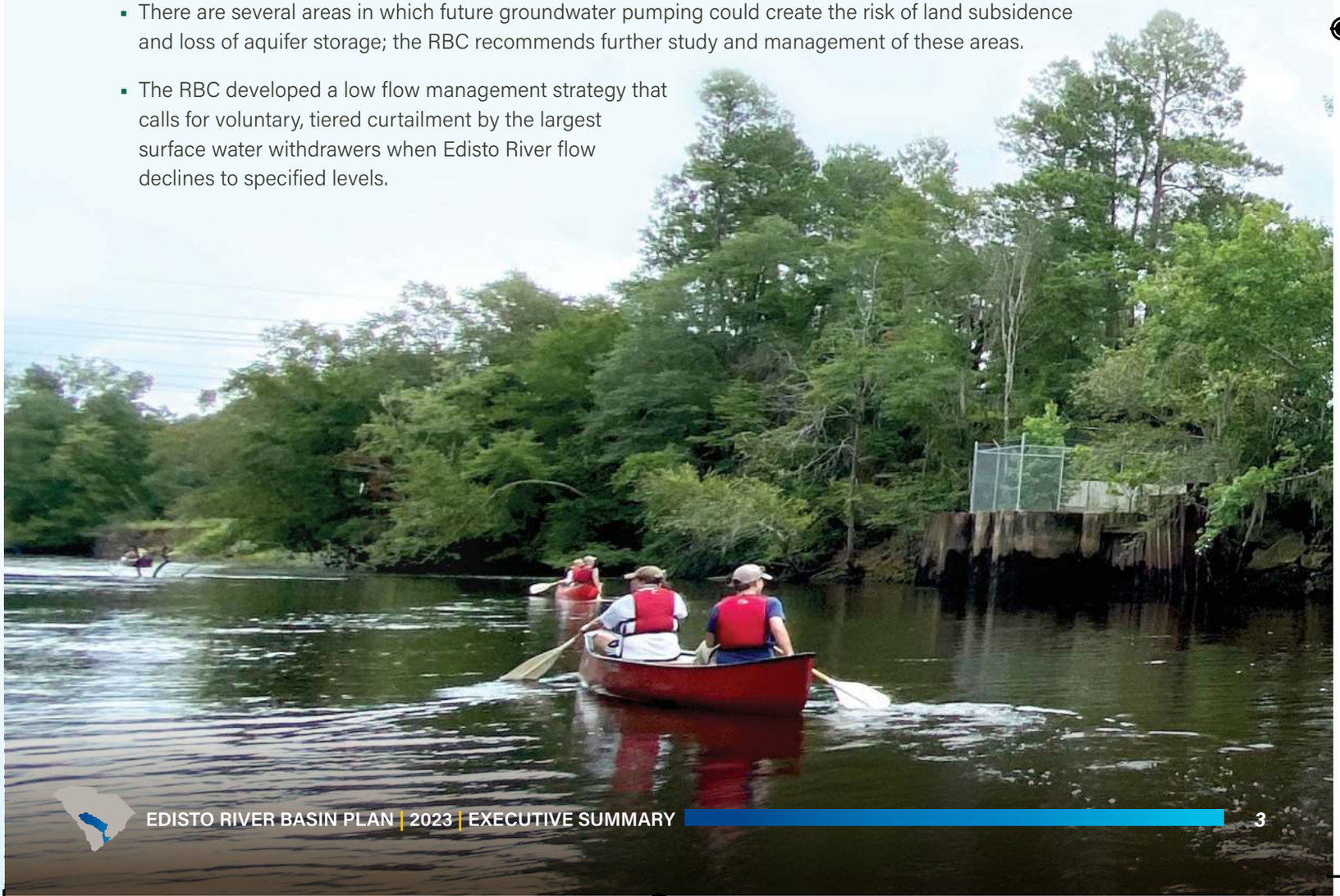
CDM Smith
John Boyer
Dr. Tim Cox
Terry Crowell
Mark Darwin
Grace Houghton
Sue Morea
Camren Shea
Kirk Westphal

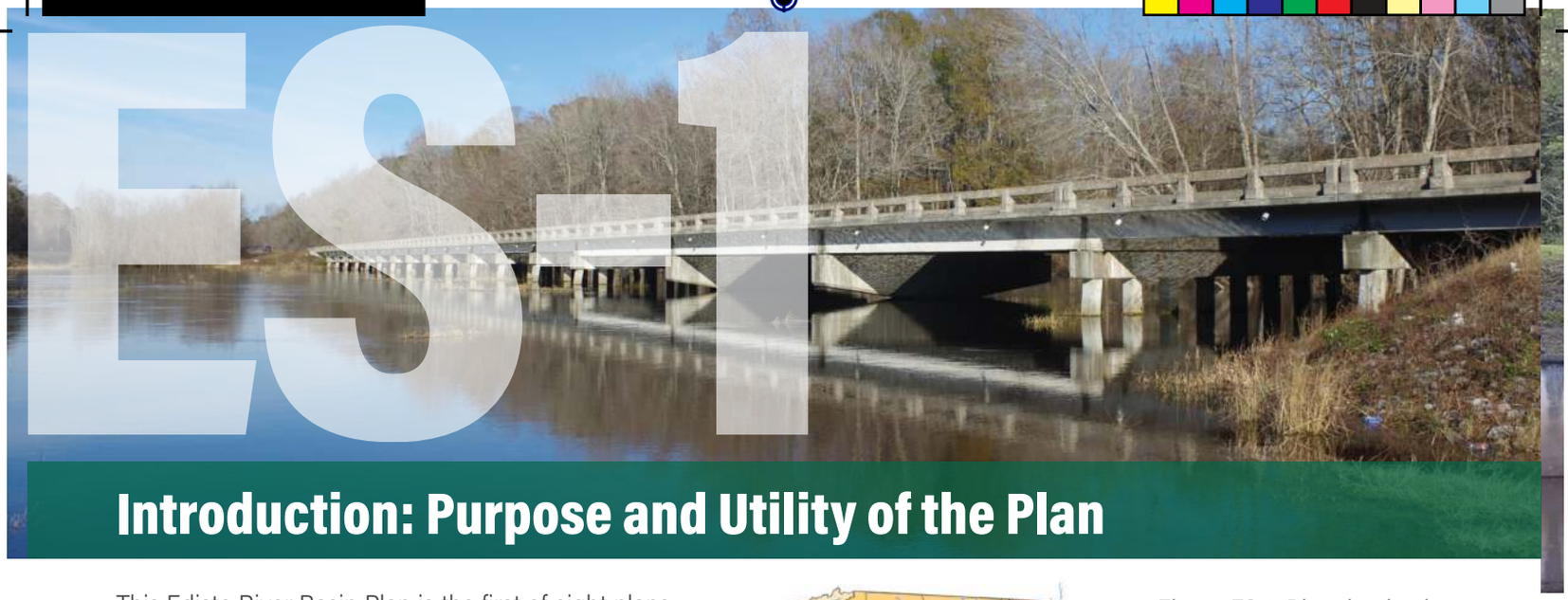
WHAT TO KNOW ABOUT THIS PLAN

This plan was the first of eight river basin plans to be developed for South Carolina. The Edisto RBC, composed of stakeholders representing various water interests, collaborated with SCDNR and the South Carolina Department of Environment and Health (SCDHEC), and met monthly for over 2 years, one of which was during the the COVID-19 pandemic. They followed a carefully designed process to establish goals and actions throughout the basin. Through facilitated dialogue, they discussed issues, increased their understanding of various perspectives, agreed on recommended actions or policies for improved water management where possible, and offered viewpoints to aid decision makers in realizing progress throughout the basin. This plan is a direct result of their efforts to improve the sustainability of water resources in the Edisto River basin, and to improve the balance between societal and environmental water uses.

Some of the most important findings of and recommendations from the RBC include:

- Water resources of the Edisto River basin are generally sufficient to meet current needs.
- Projected water shortages through 2070 (principally in the agricultural sector) can likely be managed with on-site (in many cases, already existing) storage. Existing Drought Management Plans, if followed, are effective in eliminating the infrequent, short-term public water supply shortages through 2070 that are projected to occur assuming high growth and water demand.
- Only about 17 percent of the allowable (permitted and registered) water volumes are currently withdrawn from surface and groundwater. The basin would be unsustainably stressed, with frequent shortages and more severe low flows, if all allowable withdrawals were taken.
- Changes in water use are not likely to impose significant risk to the ecology of the basin, though this finding is generalized over large scales, and certain headwater tributaries may be more affected than primary and secondary tributaries.
- There are several areas in which future groundwater pumping could create the risk of land subsidence and loss of aquifer storage; the RBC recommends further study and management of these areas.
- The RBC developed a low flow management strategy that calls for voluntary, tiered curtailment by the largest surface water withdrawers when Edisto River flow declines to specified levels.





ES-1

Introduction: Purpose and Utility of the Plan

This Edisto River Basin Plan is the first of eight plans that will be developed for the primary river basins in South Carolina (Figure ES-1). Numerous and diverse stakeholders throughout the basin worked with SCDNR, SCDHEC, and others during its development. The plan was prepared in response to the South Carolina Water Resources Planning and Coordination Act, and continues the work that began in 1998 with the South Carolina Water Plan.

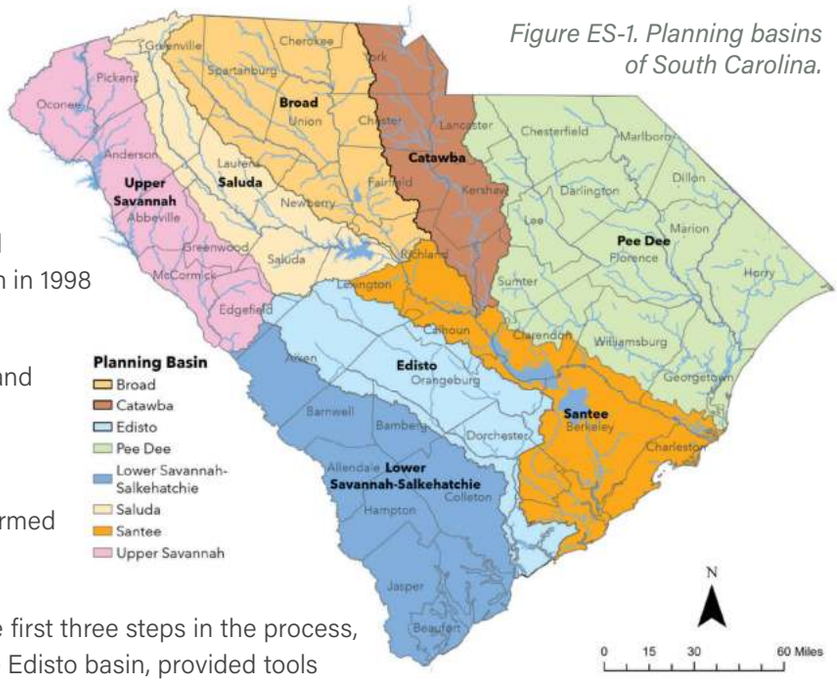


Figure ES-1. Planning basins of South Carolina.

In 2014, a five-step process was initiated to update and actualize the South Carolina Water Plan (see Figure ES-2). The process was conceived and organized to provide the necessary scientific and water use information to stakeholders so they could make informed recommendations on water management actions, policies, and potential legislation in response to the needs of each basin. The first three steps in the process, now complete for the Edisto basin, provided tools and data on surface water and groundwater resources, as well as historical water use, current water demand, and estimates of future demand for the basin. This plan is the culmination of Step 4 of the process for the Edisto River basin. The plan assesses water availability in the basin over a 50-year planning horizon and presents the recommendations of the Edisto RBC-a diverse group of volunteer stakeholders representing eight different water-interest categories.

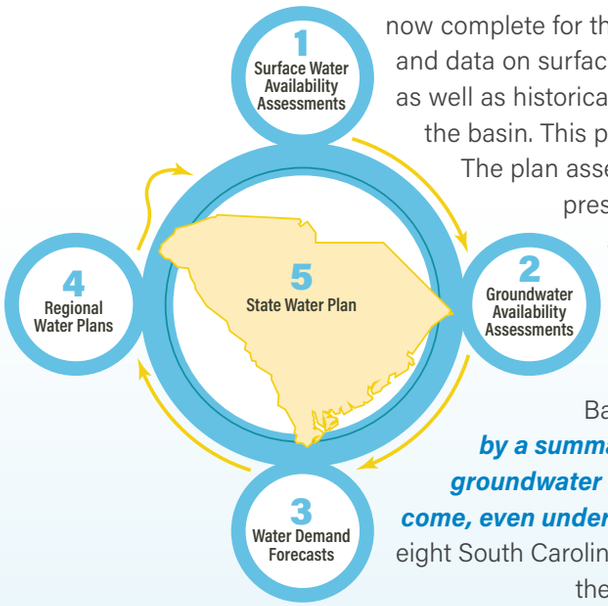
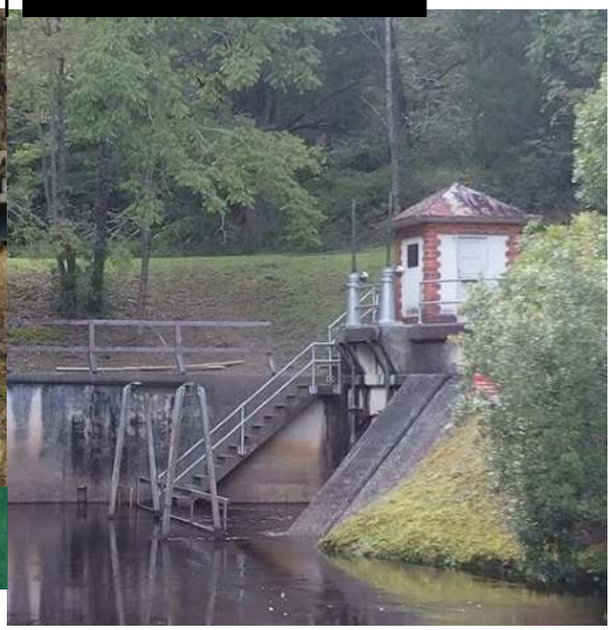


Figure ES-2. South Carolina's five-step process to update the State Water Plan.

Section ES-2 describes the planning process in more detail. As prescribed in the South Carolina State Water Planning Framework (see Section ES-2), the Edisto RBC was charged with supporting the development of this River Basin Plan as "***a collection of water management strategies supported by a summary of data and analyses designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions.***" This same planning process will be applied in all eight South Carolina river basins—the Edisto was the first. As such, in addition to reporting the RBC recommendations for the Edisto River basin, this plan will propose suggested adaptations of the planning process based on lessons learned to date.



Specifically, each River Basin Plan will include data, analysis, and water management strategies to guide water resource development in the basin for a planning horizon of 50 years by answering four principal questions:

1. What is the basin's current available water supply and demand?
2. What are the current permitted and registered water uses within the basin?
3. What will be the water demand in the basin throughout the planning horizon, and will the available water supply be adequate to meet that demand?
4. What water management strategies will be employed in the basin to ensure the available supply meets or exceeds the projected demand throughout the planning horizon?

River Basin Plans will focus principally on the quantity and availability of surface water and groundwater for all designated uses: drinking water, agricultural and other irrigation, forestry, industry and economic development, power generation, nonconsumptive uses such as aquatic habitat suitability and environmental needs, and water-based recreation. Plans will not directly focus on flood management or water quality (these important issues are considered in other plans), however, the RBCs are encouraged to consider water management strategies that have secondary benefits with respect to flood management and water quality.

Ultimately, all eight River Basin Plans will comprise the updated and actionable South Carolina State Water Plan. While these plans do not prescribe regulatory, policy, or legislative decisions, they represent consensus-based recommendations from diverse and vested stakeholders on prudent actions and policies to be considered by citizens, water managers, state agencies, and elected officials to help ensure future water availability for all uses.

More background information can be found in Chapter 1 of this plan.

ES-2

Overview of the Planning Process

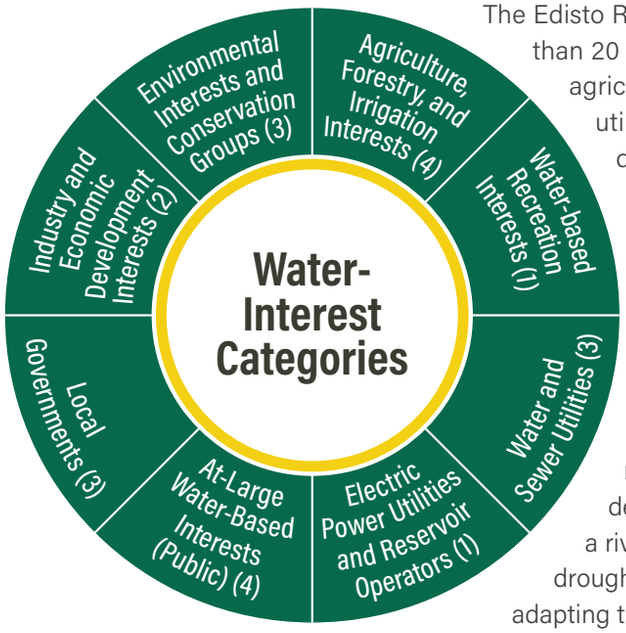


Figure ES-3. RBC water-interest categories represented in the RBC. Numbers in parentheses indicate RBC member representation.

The Edisto River Basin Plan was formulated by the Edisto RBC, a group of more than 20 individual volunteer stakeholders representing local governments, agriculture and forestry, environmental interests, water-based recreation, utilities (water, sewer, electric power), and industry/economic development (see Figure ES-3).

The Edisto RBC met monthly over a 2-year period to follow the systematic planning process prescribed in the 2019 South Carolina State Water Planning Framework. The Planning Framework was developed collaboratively by SCDNR and the PPAC, a 19-person group composed principally of the same interest groups as each individual RBC but with academic representation. As stated, its goal was to support the development of River Basin Plans as "a collection of water management strategies supported by a summary of data and analyses designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions." The PPAC will continue to function by amending and adapting the Planning Framework as necessary based on lessons learned from individual RBCs, and by helping to ensure consistency between the eight plans so that they cohesively contribute to the effectiveness of the overall State Water Plan.

The series of over two dozen meetings of the RBC involved field trips within the basin, including a canoe trip down the Edisto River, a tour of the Charleston Water System intake near Givhans, and a visit to Walther Farm. These helped connect each RBC member to the physical setting of the river basin and the multiple needs the water serves. This holistic perspective of the basin helped foster consensus-building.

The planning process is divided into four phases, discussed below and in greater detail in the Planning Framework. Each phase spanned approximately 6 months, equally representing one quarter of the entire process.

PHASE 1

Orientation, Administrative Tasks, and Background Information

During this phase, RBC members reviewed bylaws, protocols, expectations, and the planning process. They selected a chair and vice-chair and reviewed technical information to aid them in the planning process for the Edisto River basin. The RBC also formulated a vision statement and goals.

PHASE 2

Comparison of Water Resource Availability and Demand

In this phase, the RBC reviewed the methods, tools, and results from the first three steps of the overall State Water Plan formulation, including surface water availability analysis, groundwater availability analysis, and water demand projections. This provided a consistent and scientific perspective on the overall balance of supply and demand throughout the basin, as well as current and future risks. Results were derived from the surface water and groundwater models developed in earlier steps, which also would be relied upon to test the effectiveness of various water management strategy alternatives. The RBC also developed and finalized performance measures to evaluate the effectiveness of various water management alternatives to be examined in Phase 3.

PHASE 3

Evaluation of Water Management Strategies

This was an interactive phase that involved the RBC and technical team identifying and evaluating water management strategies to address water shortages or water supply issues identified in Phase 2. Results were reported back to the RBC and evaluated against established performance measures. This interchange allowed the RBC to recognize common benefits and agree on recommended strategies and their relative priorities.

PHASE 4

River Basin Plan Preparation

This final phase involves the development of a draft version of the plan, including recommendations for water management strategies, policies, legislation, and regulatory actions. It also includes the formulation of recommendations for drought response initiatives, and recommendations for improving the planning process. It includes a period for public review and appropriate incorporation of public comments before finalizing the plan.

During Phase I, the Edisto RBC developed the following mission statement, vision statement, and goals specifically for the Edisto basin. A key tenet of the plan is the importance of balance between stakeholder and ecosystem needs.

MISSION STATEMENT

To develop, update, and support implementation of a River Basin Plan for sustainable management of water resources in the Edisto River basin.

VISION STATEMENT

A resilient and sustainably managed Edisto River basin where stakeholder and ecosystem needs are recognized, balanced, and protected.

GOALS

1) **Develop water use strategies, policies, and legislative recommendations for the Edisto River basin to:**
   - 1a) Ensure water resources are maintained to support current and future human and ecosystem needs
   - 1b) Improve the resiliency of the water resources and help minimize disruptions within the basin
   - 1c) Promote future development in areas with adequate water resources
   - 1d) Encourage responsible land use practices

2) **Develop and implement a communication plan to promote the strategies, policies, and recommendations for the Edisto River basin**

The process included outreach to the public to educate and augment the RBC with important information and perspectives. Two initial informational meetings were held to explain the planning process and solicit participation in the RBC. Two additional meetings are reserved for presentation of the draft plan and solicitation of verbal and written comments, and for the presentation of the final plan after its release, to highlight changes to the plan made in response to public input.

ES-3

Overview of the Edisto Basin

The Edisto River basin covers approximately 3,120 square miles, making up 10 percent of the state's total area. The basin extends from southeastern Edgefield County, at its northern limit, to the western portion of Charleston County at the coast. Extending approximately 130 miles from its landward to coastal extents, the basin is approximately 30 miles wide through most of its length, with a thinner portion near the coast. The Edisto River is one of the longest free-flowing blackwater rivers in North America. It develops its dark color from tannins leached into the water from decaying vegetation in the swamplands it flows through (SCDNR 2009).

Most of the Edisto basin is undeveloped. As shown in Figure ES-4, only about 8 percent of the land area of the basin is developed, while more than 70 percent is composed of woodlands, wetlands, shrubland, and open water. Of note, however, is the comparatively high percentage of land currently used for agriculture (21 percent). This is one of the most unique features of the Edisto River basin relative to the other basins in the state. Farming, incuding the production of both crops and livestock, is vitally important to the economy in the Edisto River basin. The basin contains some of the most productive agricultural land in the state. The U.S. Department of Agriculture's (USDA's) Natural Resources Conservation Service (NRCS), which inventories land that can be used for the production of the nation's food supply, has categorized almost 50 percent of the basin as prime farmland or farmland of statewide importance, as shown in Figure ES-5 (USDA NRCS n.d.). Not all of this land is necessarily active farmland, but a significant portion of it is.

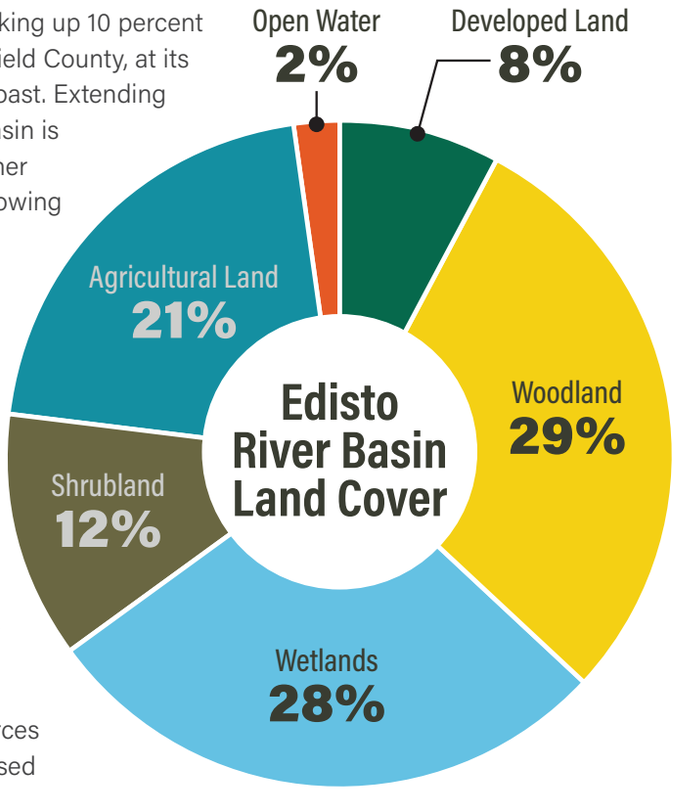


Figure ES-4. Edisto River basin land cover.

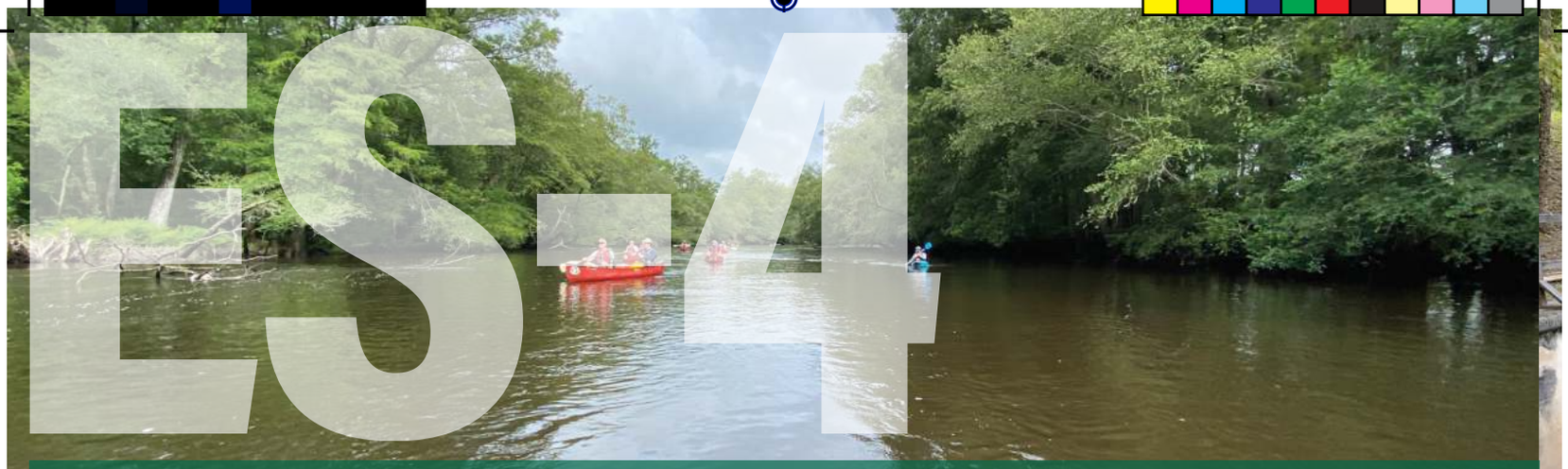
Annual average precipitation throughout the basin ranges from 45 to 51 inches, with the top and bottom parts of the basin generally receiving a few more inches of rain during the year than the middle portion of the basin. July is generally the wettest month (averaging 5.8 inches) and November is generally the driest month (averaging 2.7 inches).

The least amount of precipitation occurred in 1954 (approximately 25 inches), but for the Edisto River basin, this is not the driest year regarding stream flows. Three stream gauges within different parts of the basin recorded the lowest monthly flows on record in 2002 (U.S. Geological Survey [USGS] 2022). The most recent year of drought conditions (defined by a Standard Precipitation Index of less than -1) in the Edisto basin was in 2011, and generally, conditions have been wetter than normal for the past decade.

Figure ES-5. NRCS-categorized farmland in the Edisto River basin.

The rivers and tributaries of the Edisto River basin are home to 87 native and 3 introduced species of freshwater fish. Striped sunfish, shown in Figure ES-6, are common in the river. The Edisto River is also an important habitat for diadromous fish, those that migrate between freshwater and saltwater. Striped bass and Atlantic sturgeon can be found in various reaches of the Edisto River depending on the season (Thomason 2020).

Figure ES-6. Striped Sunfish of the Edisto River (Thomason 2020).



ES-4 Water Availability: Supply and Demand

SURFACE WATER SUMMARY

The Edisto River is one of the longest freely flowing blackwater streams in the United States, and is the largest river system completely contained within the borders of South Carolina. The basin is composed of four major subbasins: South Fork Edisto, North Fork Edisto, Lower Edisto, and Four Hole Swamp. (Figure ES-7). The four main branches total 250 miles and are fed by over 6,800 miles of perennial and intermittent streams. There are no major reservoirs within the basin, however small lakes and ponds are prevalent on tributary headwaters, especially in the upper and lower portions of the North Fork Edisto and South Fork Edisto subbasins. Many farmers have created small impoundments on the streams that cross their land to provide storage and maintain adequate head for irrigation pumping.

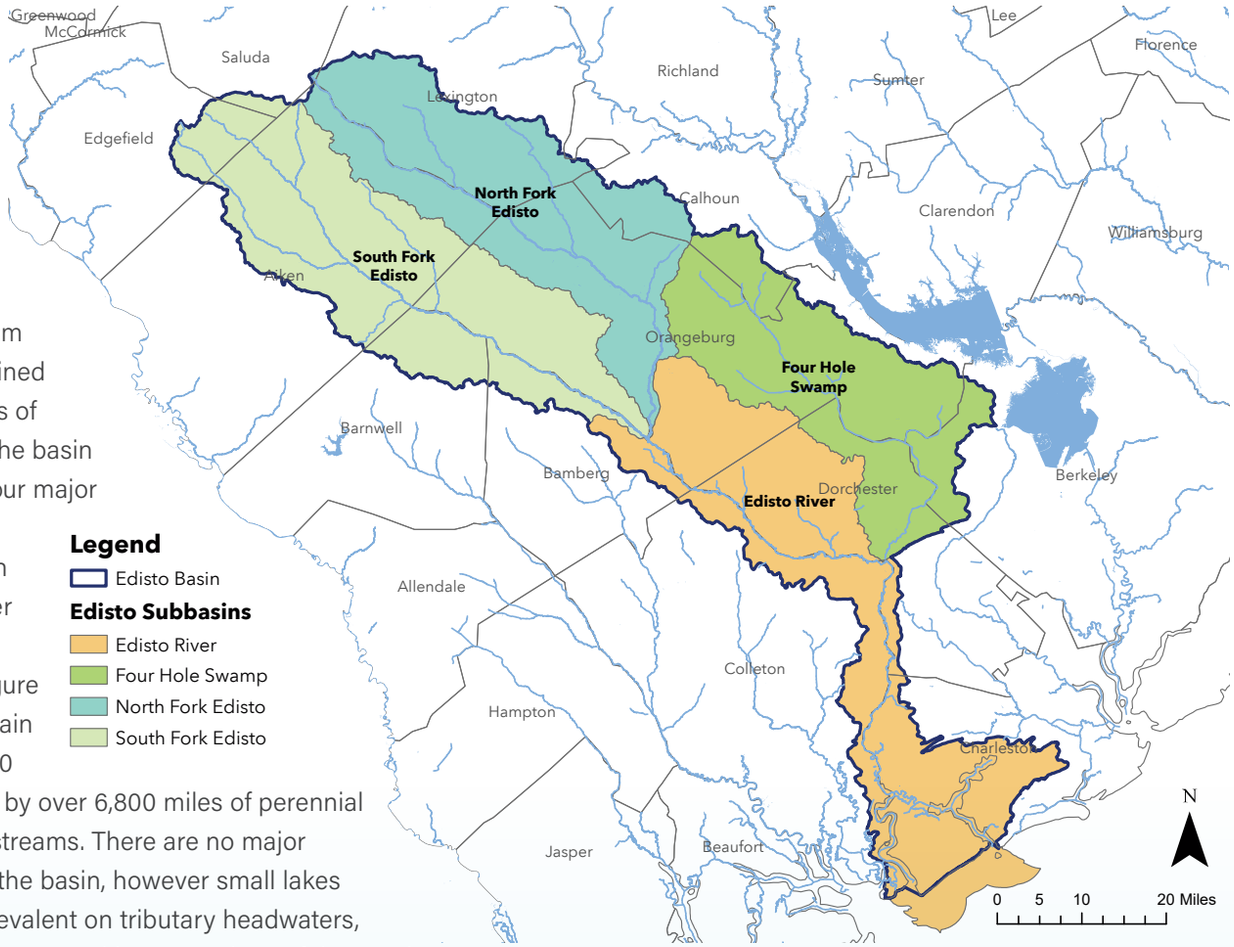


Figure ES-7. Subbasins of the Edisto River basin.

The major rivers of the Edisto River basin are free-flowing and completely contained within the borders of the state. Consequently, the basin is absent of many of the surface water concerns common to other river basins of the state such as out-of-state withdrawals and flow regulation from major reservoirs or Federal Energy Regulatory Commission-licensed hydroelectric projects.

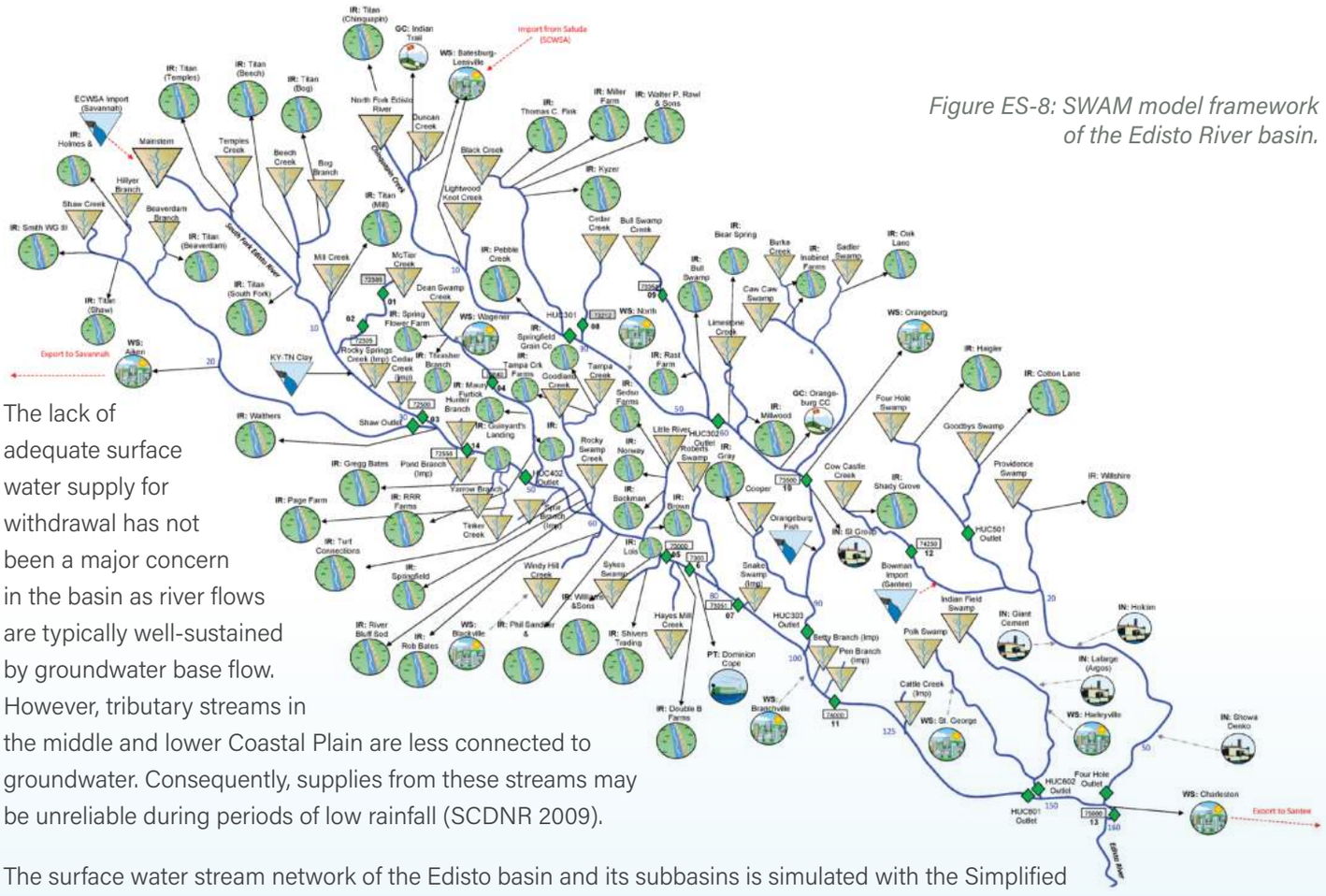


Figure ES-8: SWAM model framework of the Edisto River basin.

The lack of adequate surface water supply for withdrawal has not been a major concern in the basin as river flows are typically well-sustained by groundwater base flow. However, tributary streams in the middle and lower Coastal Plain are less connected to groundwater. Consequently, supplies from these streams may be unreliable during periods of low rainfall (SCDNR 2009).

The surface water stream network of the Edisto basin and its subbasins is simulated with the Simplified Water Allocation Model (SWAM), pictured in Figure ES-8. The model is used to quantify current and future surface water availability based on simulated natural hydrology and current and projected water demand. It is also used to simulate future water management strategies to identify risks and reliability of surface water utilization.

GROUNDWATER SUMMARY

Like surface water resources, groundwater resources were evaulated for the Edisto River basin. The aquifer system underlying the basin is the Coastal Plain aquifer system, which is a wedge of layered aquifers and confining units that begins at the Fall Line and thickens toward the coast (Figure ES-9).

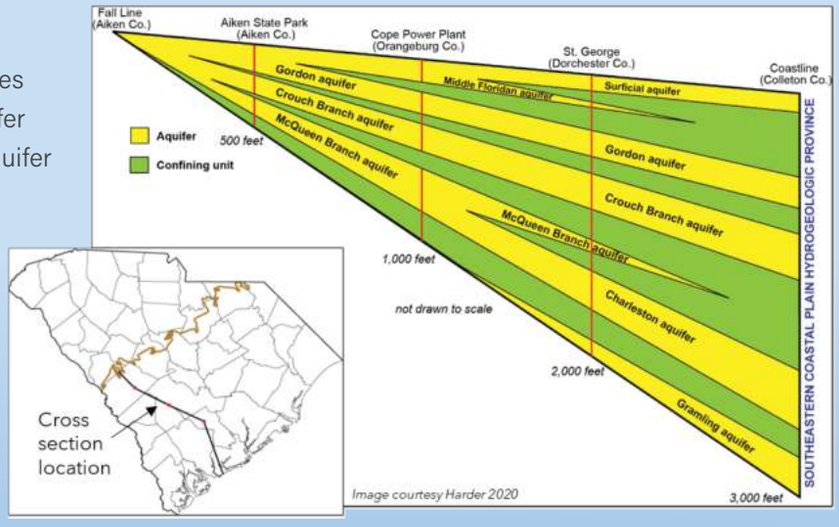


Figure ES-9: Coastal Plain aquifer system in the Edisto River basin.

The most productive aquifers in the Edisto River basin are the surficial, Middle Floridan, Gordon, Crouch Branch, and McQueen Branch. The surficial aquifer typically occurs under water table conditions throughout the basin with its flow direction largely following topography of the ground surface (SCDNR 2009). The Floridan aquifer system is one of the most productive aquifer systems in the United States and has substantial volume pumped from it in southern South Carolina and coastal Georgia. Thickness of the aquifer ranges from about 0 to 100 feet and yields of up to 200 gallons per minute (gpm) can be obtained where it is thick and permeable. Used mainly as a domestic supply, it is also used for small public supply systems and light industry and irrigation. The Gordon aquifer underlies the Middle Floridan across most of the basin and is an important source of water for domestic supply, small public supply, and for light irrigation and industry. Aquifer thickness ranges from 0 feet near the Fall Line to about 200 feet near the coastline. Yields of up to 500 gpm can be obtained from the aquifer although yields of over 1,000 gpm have recently been reported from wells drilled at Edisto Island. Underlying the Gordon aquifer is the Crouch Branch aquifer, the most heavily utilized aquifer in the basin, followed by the McQueen Branch aquifer. Both aquifers are important sources of water for crop irrigation, as well as public supply, industry, and thermoelectric energy production. These aquifers occur at or near the surface in the northern parts of Aiken and Lexington Counties and reach depths of over 1,000 feet in coastal areas. Yields in the range of 500 to 1,000 gpm are typical of these two aquifers within the Edisto basin.

Groundwater in South Carolina is regulated through areas designated as Capacity Use Areas (CUAs). Under South Carolina's Groundwater Use and Reporting Act (Chapter 5, Section 49-5-60), SCDHEC designates a CUA where excessive groundwater withdrawals present potential adverse effects to natural resources, public health, safety, or economic welfare. SCDHEC then coordinates with affected governing bodies and groundwater withdrawers to develop a groundwater management plan for the CUA.

Despite the overall absence of major cones of depression within the Edisto River basin, the basin includes three CUAs: the Western CUA in the upper Coastal Plain; the Lowcountry CUA in the western lower Coastal Plain; and the Trident CUA in the eastern lower Coastal Plain.

Groundwater resources have been adequate for agricultural irrigation and many other uses. In the upper part of the basin, groundwater levels remain close to predevelopment levels, while in the lower part of the basin, near the coast, groundwater levels are noticeably lower than predevelopment levels. In coastal areas of Charleston and Colleton Counties, some Gordon aquifer wells are experiencing saltwater intrusion (SCDNR 2019). Many monitoring wells, particularly in the middle and lower Coastal Plain, show that artesian levels have declined as the coastal population and demand for water has grown (SCDNR 2009). If groundwater levels decline below the top of an aquifer, compaction, reduced well yields, and land subsidence may occur.

The surficial aquifer is threatened by chemical introduction from land use practices and from chemical releases such as petroleum leaks from underground storage tanks. During RBC meetings, it was noted that groundwater is not always the optimum quality for irrigation use. Groundwater may have a lower pH than is ideal for irrigation, and hardness may shorten the lifespan of irrigation equipment because of mineral precipitation. These water quality concerns may limit the expansion of groundwater development for irrigation, where alternatives to surface water are explored.

Also notable of the groundwater resources in the Edisto River basin is that there is interaction between groundwater and surface water, particularly in the northern portion. In the upper Coastal Plain, streams are fed by groundwater, which contributes to steady stream and river flows. Reductions in groundwater levels may lead to reduced base flow to streams in these areas.

WATER DEMAND SUMMARY

The current and projected water demands in the Edisto River basin are summarized in Figures ES-10 through ES-12. Total current water use in the basin is approximately 150 million gallons per day (MGD), and is projected to increase by 2070 to 234 MGD for the moderate growth scenario and 303 MGD for the high demand growth scenario. These projected water demands are well below the total permitted and registered withdrawal volumes in the basin of 866.4 MGD. Permitted and registered withdrawals are not, however, proxies for water availability in the basin, as sufficient flows to satisfy such withdrawals rates cannot be guaranteed into the future. Chapter 5 presents the results of model simulations of these growth scenarios to evaluate the adequacy of the basin's water supply sources now and into the future.

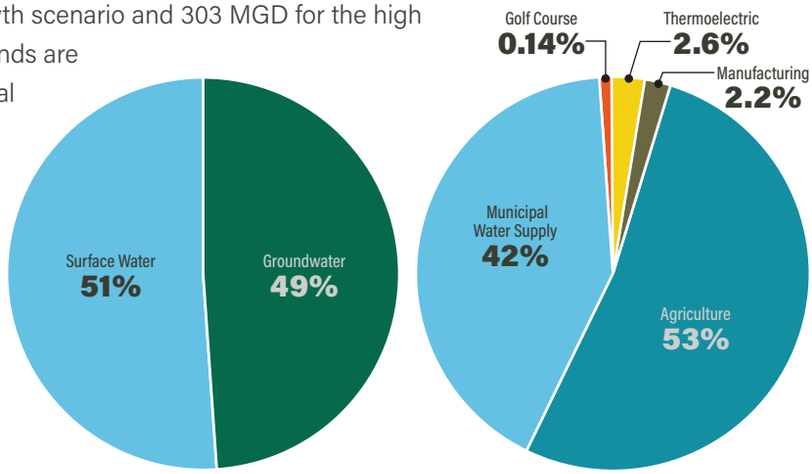


Figure ES-10. Current demand by source type and use category.

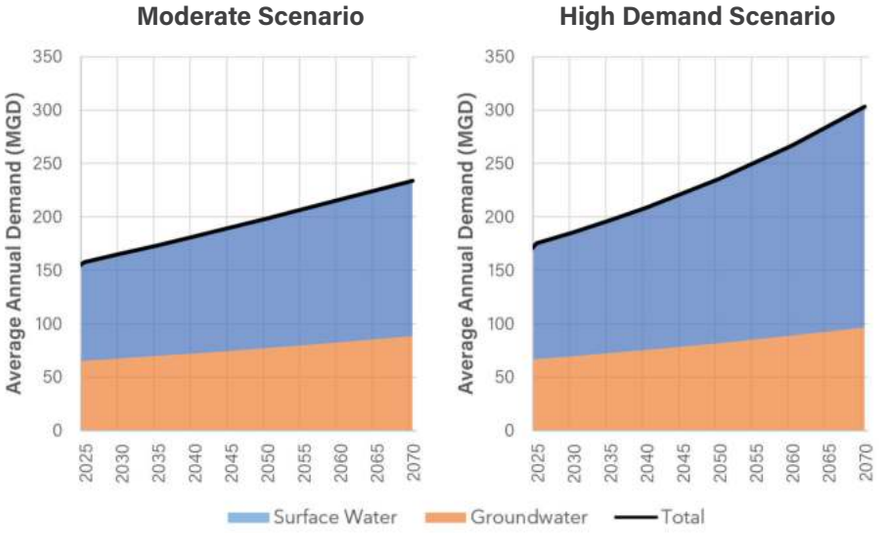


Figure ES-11. Demand projections by water source.

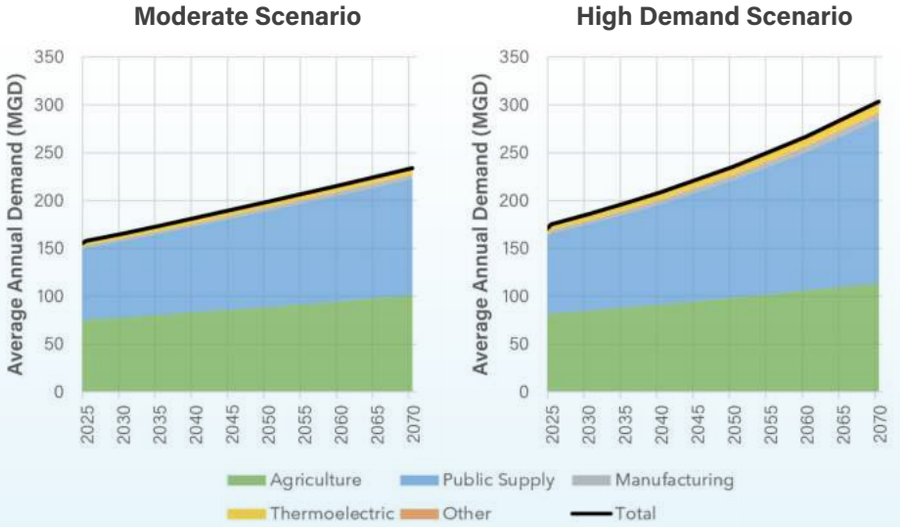


Figure ES-12. Demand projections by water use category.

WATER AVAILABILITY SUMMARY

Surface and groundwater modeling using current and projected rates of water withdrawals resulted in identifying several key observations and conclusions about the availability of water resources in the Edisto River basin. These key conclusions, presented in the subsection below, led to the RBC identifying and evaluating a suite of water management strategies to address projected surface water shortages and Groundwater Areas of Concern, which are areas where current or future groundwater withdrawals are causing or are expected to cause unnacceptable impacts to the resource or to the public health and well being. These conclusions also guided the identification of strategies to protect surface water supply and maintain adequate river flows, especially during low flow conditions. The evaluation and selection of water management strategies is presented in Chapter 6, Water Management Strategies, and summarized in Section ES-5.

In accordance with the Framework, four scenarios were evaluated in this analysis and simulated to 2070. For surface water, the demand scenarios were superimposed on historical hydrology. For groundwater, the demand scenarios were applied beginning with predevelopment conditions and extending to 2070.

- **Current Conditions (Current):** A snapshot in time of current demand levels
- **Moderate Demand Growth (Moderate):** Projected moderate increase in demands through 2070
- **High Demand Growth (High Demand):** Aggressive assumptions of population and demand growth through 2070
- **Permitted and Registered Demand (P&R):** A hypothetical scenario in which all existing permits and registrations are simulated as fully utilized

A fifth scenario was also run, at the request of the RBC, to understand naturally occurring water in the absence of any human impacts (no withdrawals or returns). For surface water, this scenario was the Unimpaired Flow Scenario (UIF) Scenario and for groundwater this was the Predevelopment simulation.

The results and conclusions are based on modeling that assumed historical climate patterns. In subsequent phases of river basin planning, the RBC may decide to evaluate potential impacts to water supply availability resulting from changing climate, such as increasing temperatures and more variable precipitation.

KEY SURFACE WATER OBSERVATIONS AND CONCLUSIONS

The surface water availability modeling suggests a low risk of Surface Water Shortages (defined as ***when water demand exceeds the surface water supply for any water user in the basin***) under reasonable future demand scenarios. It suggests there could be shortages for agricultural users in small headwater streams that do not have storage ponds. By year 2070, assuming high population and economic growth and hot/dry conditions, a repeat of the drought of record (2002) would produce shortages of 1 to 2 months for two water suppliers—the City of Aiken, which withdraws from Shaw Creek in the upper part of the basin, and Charleston Water System (CWS), which withdraws from the Edisto River in the lower part of the basin. Both Aiken and CWS have alternative sources of water and drought management plans that include strategies that would potentially help avoid a shortage. A third water supplier with a predicted shortage, Batesburg-Leesville, has already signed a 40-year agreement to connect to the Joint Municipal Water & Sewer Commission of Lexington County, which withdraws water from Lake Murray in the Saluda River basin.

Specific observations and conclusions relative to each planning scenario are presented below.

UIF Scenario: The UIF Scenario (natural hydrology with no withdrawals or returns) results show that near Givhans, mean and median unimpaired flows are approximately 3 and 4 percent higher than Current Scenario flows, respectively. At this same location, UIF Scenario low flows (25th to 5th percentile) are approximately 10 to 20 percent higher, respectively, than Current Scenario flows.

Current Scenario: Surface Water Shortages were identified in the Current Scenario for 12 agricultural water users in the SWAM model, ranging in frequency from 0.1 to 46 percent of months of the 88-year simulation period. However, many if not all the simulated shortages in this scenario are likely to be significantly tempered or avoided because of on-site storage available from existing ponds, which were not included in the model. The ponds provide much-needed storage during low flow conditions that occur during a drought.

Moderate Scenario: In the Moderate Scenario, throughout the basin, flows are predicted to decrease modestly compared to the Current Scenario. Modeled reductions are most pronounced during low flow periods. Mean and median Edisto River flows near Givhans are predicted to decrease by approximately 5 percent and low flows (25th to 5th percentile) by about 20 percent by 2070. Calculated water user shortages remain essentially unchanged relative to the Current Scenario. Surface water supplies are predicted to be adequate to meet increased demands resulting from moderate economic and population growth.

High Demand Scenario: In the High Demand Scenario, throughout the basin, river flows are also predicted to decrease modestly compared to the Current Scenario and the Moderate Scenario. Modeled reductions are most pronounced during low flow periods. Mean and median Edisto River flows near Givhans are predicted to decrease by approximately 10 percent and low flows (25th to 5th percentile) by more than 40 percent by 2070 if population and economic growth is high and the climate hotter and drier. Calculated water user shortages increase slightly, in terms of both duration and intensity, for the 2070 planning horizon, as compared to the Current Scenario results. Aiken, CWS, and Batesburg-Leesville each had simulated shortages ranging from 1 to 2 months during the 2002 drought of record in the High Demand Scenario.

P&R Scenario: In the P&R Scenario (i.e., surface water withdrawals at fully permitted and registered amounts), river flows are predicted to decrease compared to the Current Scenario, resulting in Surface Water Shortages for 54 percent of the surface water users. Mean and median flows on the Edisto River near Givhans are predicted to decrease by approximately 23 and 36 percent, respectively. Edisto River flows would essentially be 0 cubic feet per second (cfs) more than 5 percent of the time at this location. With surface water demands greater than four times the High Demand 2070 Scenario demands, the P&R Scenario represents an unrealistic scenario; however, it demonstrates that the surface water resources of the basin are overallocated based on existing permit and registration amounts.

ASSESSMENT OF ECOLOGICAL RISK AND LOW FLOWS

The application of biological response metrics and the development of flow-ecology relationships demonstrated that the simulated flow regimes of the Moderate, High Demand, and P&R Scenarios are likely to result in low ecological risk in primary and secondary tributaries of the Edisto River basin. At only a few of the locations evaluated were risks predicted to increase to the medium or high category in the High Demand and P&R Scenarios. The assessment was limited to four hydrologic and five biological response metrics for which good correlation had been established. The findings do not rule out potential risks for ecological integrity or tolerance related to other metrics or flow changes.

Low flows occur naturally in the basin but can be exacerbated by surface water withdrawals. Figure ES-13 depicts the simulated (daily) UIF, Current, Moderate, High Demand, and P&R Scenario Edisto River flows at the Givhans streamflow gaging station based on 2002 hydrology, which is the drought of record in the basin. Actual flows recorded at the gaging station are also shown. The hydrograph demonstrates that flows, which typically average 1,500 to over 4,000 cfs depending on the month, can drop to as low as 250 cfs under naturalized conditions (UIF flows), and to zero using the 2070 High Demand Scenario. Although Minimum Instream Flow (MIF) regulations (Section 49-4-150) require that surface water users conserve water during periods of low flow, MIF regulations do not apply to agricultural surface water users, surface water users with permits issued prior to the enactment of Surface Water Regulation 61-119 in 2011, or public water suppliers seeking new surface water permits. Because of these exceptions, currently no users in the Edisto River basin are subject to MIF requirements.

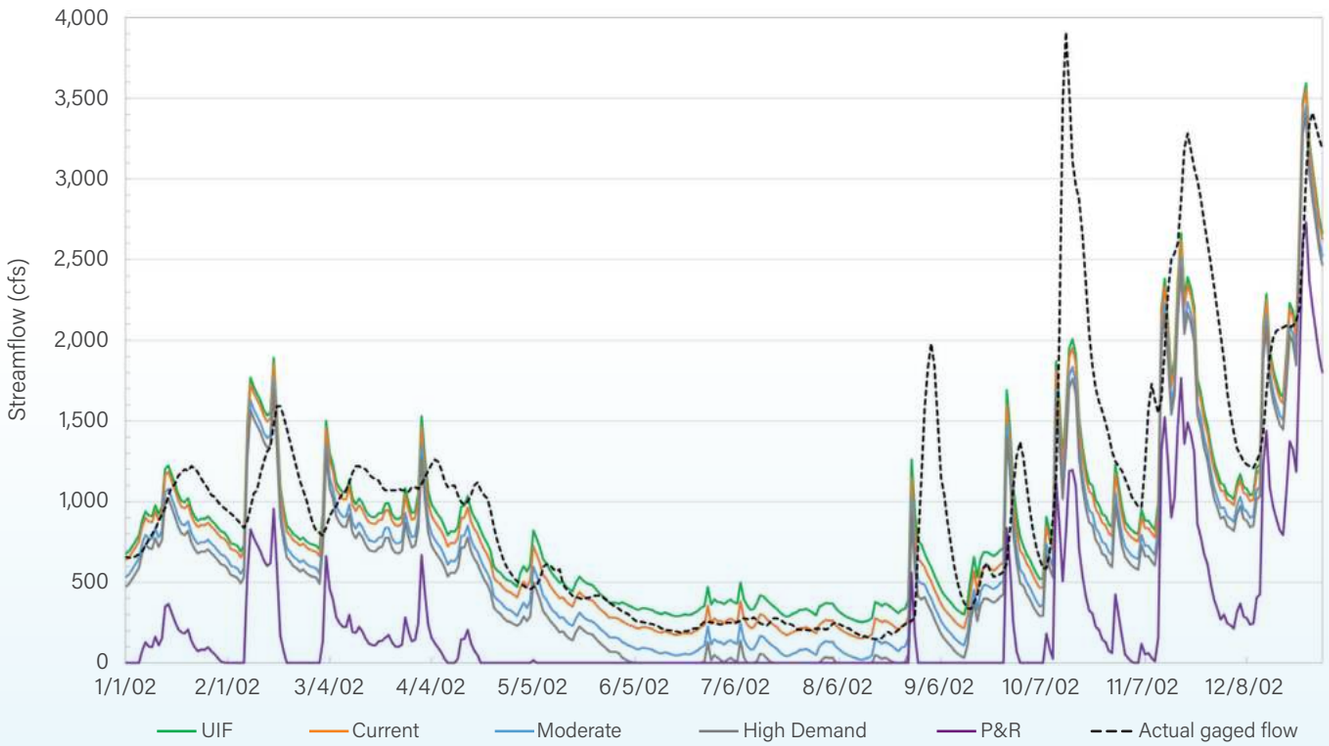
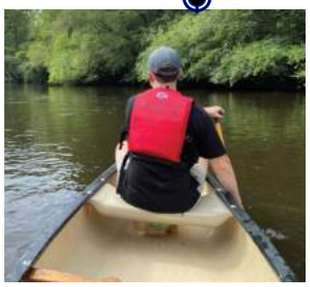


Figure ES-13. Hydrograph depicting simulated daily scenario flows for the 2002 drought of record.



KEY GROUNDWATER OBSERVATIONS AND CONCLUSIONS

The groundwater level declines simulated in all scenarios result in aquifer levels dropping below the top of the Crouch Branch aquifer in the southern half of Calhoun County, and below the top of the McQueen Branch aquifer in a more limited area of Lexington County. In Aiken County, projected withdrawals also indicate the possibility for localized reductions in water levels below the top of the McQueen Branch aquifer. At each of these locations, there are risks to the groundwater aquifers under all scenarios that will need to be managed, including the risk of reduced storage, land subsidence, reduced well yields, and/or dry wells. Because of the potential for negative impacts when groundwater levels drop below the top of an aquifer, the RBC decided to designate areas where modeling or monitoring show declines below the top of an aquifer as Groundwater Areas of Concern.

Additional observations and conclusions relative to each planning scenario are presented below.

- Model-predicted groundwater level declines from 2020 to 2070 under Current Scenario pumping rates are generally in the 5- to 10-foot range for the Gordon aquifer, the 5- to 50-foot range for the Crouch Branch aquifer, and the 5- to 75-foot range for the McQueen Branch aquifer within the Edisto River basin.
- The most severe model-predicted groundwater level declines were seen in the P&R Scenario. Declines over current simulated conditions were up to approximately 20 feet in the Gordon aquifer, 150 feet in the Crouch Branch aquifer, and 100 feet in the McQueen Branch aquifer. The Moderate and High Demand Scenarios predicted groundwater level declines were generally in between the Current and P&R Scenario declines, with the High Demand Scenario declines slightly more pronounced than the Moderate Scenario.
- The water budgets show a relatively minor reduction in discharge to streams with increased pumping from the deeper aquifers. The results suggest that groundwater withdrawals from the deeper Crouch Branch and McQueen Branch aquifers in the central part of the basin do not significantly impact stream base flow. This is to be expected given the confined nature of the deeper aquifers. Pumping in the upper part of the basin, where the aquifers are thinner, closer to the surface, and less confined, would be expected to have more impact on stream base flow.

ES-5 Water Management Strategies Evaluated

The Planning Framework identifies a two-step process to evaluate water management strategies. As a first step, proposed management strategies are simulated using models to assess their effectiveness in eliminating or reducing identified shortages or in increasing surface water or groundwater supply. For strategies that are deemed to be potentially effective, their feasibility for implementation is addressed in Chapter 6, with multiple Planning Framework considerations for determining feasibility, cost and benefits, consistency with state regulations, reliability, environmental and socioeconomic impacts, and potential interstate or interbasin impacts. Section ES-6 and Chapter 7 discuss recommendations based on this information. Table ES-1 lists the water management strategies identified and evaluated by the RBC. These were grouped into demand-side and supply-side strategies. Additionally, a low flow management strategy was evaluated as a means to preserve river flow during periods of hydrologic stress that might occur during severe and extreme drought conditons.

Table ES-1. Water management strategies evaluated by the Edisto RBC.

Demand Management Practices for Agricultural Users	Demand Management Practices for Municipal Users	Supply-Side Strategies for All Users
Water Audits and nozzle retrofits	Conservation pricing structures	Conjunctive use
Irrigation scheduling	Toilet rebate program	Off-line reservoir storage and small impoundments
Soil management	Landscape irrigation program and codes	
Crop variety, crop type, and crop conversions	Leak detection and water loss control program	
Irrigation equipment changes	Car wash recycling ordinances	
	Water waste ordinance	
	Public education about water conservation	
	Residential water audits	
	Water efficiency standards for new construction	
	Reclaimed water programs	
	Time-of-day watering limit	

ES-6 Recommendations

RECOMMENDED WATER MANAGEMENT STRATEGIES

The water management strategies identified were aimed at achieving the vision and goals developed by the Edisto RBC early in the process (Table ES-2). The Edisto RBC recommends that each of the surface water and groundwater management strategies evaluated in Chapter 6 (summarized in Table ES-1) be included in the implementation plan, and prioritized to assist with implementation.

Table ES-2. RBC vision, goals, and responsive water management recommendations.

Vision Statement	
A resilient and sustainably managed Edisto River basin where stakeholder and ecosystem needs are recognized, balanced, and protected.	
Goals	**Responsive Water Management Strategies**
1) Develop water use strategies, policies, and legislative recommendations for the Edisto River basin to:	
1a) Ensure water resources are maintained to support current and future human and ecosystem needs	▪ Low-flow strategy ▪ Conjunctive use of groundwater during times of low streamflow ▪ Encouraging that new pumping in areas of concern come from aquifers that can support additional withdrawal
1b) Improve the resiliency of the water resources and help minimize disruptions within the basin	▪ Agricultural and municipal water efficiency and conservation measures ▪ Conjunctive use of groundwater during times of low streamflow ▪ Encouraging that new pumping in areas of concern come from aquifers that can support additional withdrawal
1c) Promote future development in areas with adequate water resources	▪ Additional storage (small impoundments) ▪ Encouraging that new pumping in areas of concern come from aquifers that can support additional withdrawal
1d) Encourage responsible land use practices	▪ Soil management and cover crop ▪ Crop variety ▪ Crop type ▪ Crop conversion ▪ Future agricultural technologies
2) Develop and implement a communication plan to promote the strategies, policies, and recommendations for the Edisto River basin	▪ Public education of water conservation ▪ Residential water audits

DROUGHT RESPONSE RECOMMENDATIONS

Ongoing drought management in South Carolina occurs at the state, regional, and local levels. The Edisto RBC was charged with additional responsibilities to effectively help monitor and coordinate drought response in the Edisto River basin.

Current Drought Management Efforts

At the state level, SCDNR was tasked with formulating, coordinating, and executing a statewide drought mitigation plan. The state also created the South Carolina Drought Response Committee (DRC) to be the major drought decision-making entity in the state. The DRC is a statewide committee chaired and supported by SCDNR and its South Carolina State Climatology Office, with representatives from local interests. Because the severity and impact of drought conditions can vary across the state, SCDNR delineated four Drought Management Areas (DMAs) that generally follow the major basin divides within the state (recognizing that some of the eight basins with RBCs flow into other basins downstream). Most of the Edisto River basin is in the Southern DMA, but some headwater areas fall within the Central and Western DMA boundaries. For each of the DMAs, a variety of indicators and composite drought indices, as follows, are used in aggregate to determine drought risks: streamflows, groundwater levels, the Palmer Drought Severity Index, the Crop Moisture Index, the Standardized Precipitation Index, and the United States Drought Monitor. Based on their assessment of drought conditions, SCDNR and DRC coordinate the appropriate risk levels and appropriate response measures with the affected DMAs.

Locally, municipalities, counties, public services districts, and commissions of public works are responsible for developing and implementing drought response plans or ordinances. These local plans must be consistent with the State Drought Response Plan (SCDNR has created a template), and as such, specify triggers for voluntary and mandatory water use curtailment. The plans also identify alternative water sources that may be available to municipalities or utilities.

Edisto RBC Responsibilities for Drought Management

The Edisto RBC has assumed several important responsibilities with respect to drought management and coordination in the basin, which can be summarized in two broad categories:

Communication

- Collect and evaluate local hydrologic information for drought assessment
- Provide local drought information and recommendation to the DRC regarding drought declarations
- Communicate drought conditions and declarations to the rest of the RBC, stakeholders, and the public

Coordination of Drought Responses

- Advocate for a coordinated, basinwide response by entities with drought management responsibilities (e.g., water utilities, reservoir operators, large water users)
- Coordinate with other drought management groups in the basin as needed

Edisto RBC Drought Management Low Flow Management Strategy

The Edisto RBC formulated a major drought management initiative, with broad agreement from the RBC participants and many of the water users that this recommendation will affect. The RBC established a low flow management strategy for the basin but agreed to apply it to only the largest consumptive water users in the basin. This focuses voluntary water curtailment during droughts to where it can have the most impact, and to those users who are more likely to have resources to manage the associated water curtailments. In an effort to ease the burden on users with fewer resources, the low flow management strategy applies to surface water users whose cumulative (from all intakes) peak monthly withdrawal has exceeded 60 million gallons per month in any of the previous 12 months (the list of the largest users is subject to change each year based on actual use patterns). With this threshold, and based on current withdrawals, the strategy will apply to 92 percent of the volumetric surface withdrawal from the Edisto River and affect seven large users in the basin. Four of these users actively serve on the RBC, support this strategy, and have agreed to voluntarily work to meet the recommended withdrawal reduction targets during droughts, as listed in Table ES-3. Of note is that these reductions are independent of state-issued drought advisories or local drought management plans (although they are triggered in some cases by similar flow levels), and represent a concerted step forward by the Edisto RBC to help alleviate the impacts of future droughts on the Edisto River system.

A significant contribution of the Edisto RBC, which establishes a standard for RBCs to follow, was its development of a low flow management strategy for the basin. The adoption of this voluntary strategy by the largest water users in the basin will not replace local drought management plans or state guidance, but will augment those efforts proactively as the RBC seeks to preserve a sustainable balance between consumptive and environmental water uses.

Table ES-3. Low flow management strategy triggers and reduction goals.

Incremental Percentage Below 20 Percent of Median Flow	TRIGGER: Edisto River Flow Range (cfs) at Givhans		Reduction Goal for Surface Water Withdrawals
	Lower	Upper	
0–20%	266	332	20%
20–40%	199	266	40%
40–60%	133	199	60%
60–80%	66	133	80%
80–100%	0	66	100%

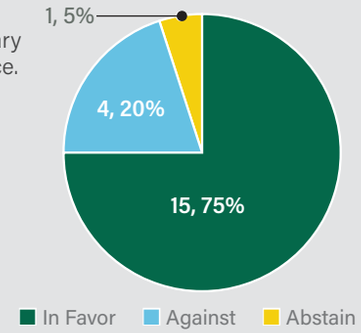
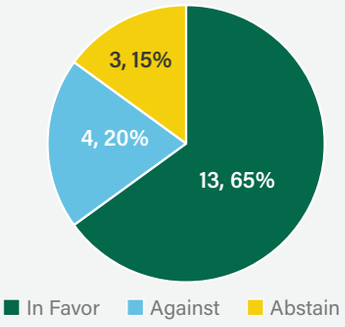
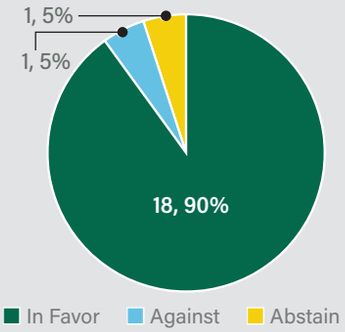
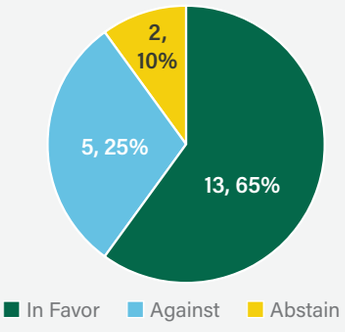
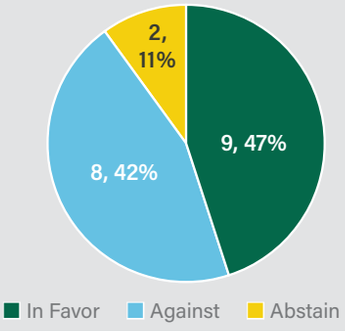
POLICY, LEGISLATIVE, REGULATORY, TECHNICAL, AND PLANNING PROCESS CONSIDERATIONS

In addition to the low flow water management strategy and drought management recommendations above, the Edisto RBC also recommended policy, legislative, and regulatory changes or considerations. The RBC also offered technical recommendations and suggestions for improving the planning process in other river basins throughout the state. These considerations are discussed in detail in Chapter 9.3 and summarized in the subsections below.

Policy, Legislative, and Regulatory Considerations

The Edisto RBC discussed five significant policy, legislative, and regulatory issues. While full consensus was not achieved on any of the issues, the various opinions offered by the RBC members are presented and discussed in Chapter 9 and summarized here. For planning purposes it is useful to consider reasons that support or do not support each issue. These should not be construed as consensus-based recommendations, but as multifaceted issues that were shaped by professional dialogue and can be interpreted through the multiple perspectives offered by RBC members. Table ES-4 summarizes the five issues and their corresponding level of support within the RBC.

Table ES-4. Policy, legislative, and regulatory issues discussed by the Edisto RBC.

Issues and Proposals	Support	Some Key Concerns	RBC Survey Results
Using mean flow rather than median flow to define safe yield may result in overallocation of surface water. **PROPOSED:** Surface water withdrawal, permitting, use, and reporting regulations should use 80 percent of median annual daily flows instead of 80 percent of mean annual daily flows to determine safe yield at a withdrawal point.	The median is a better statistical representation of flow on the river and may reduce overallocation.	▪ Potential confusion. ▪ Would the 80% threshold vary by location, based on science. ▪ Existing regulations are sufficient.	
Minimum instream flow is based on mean flow rather than median. **PROPOSED:** The surface water withdrawal, permitting, use, and reporting regulations should use median annual daily flows instead of mean annual daily flows to determine seasonal minimum instream flows at a withdrawal point.	The use of the mean in a non-normally distributed flow data set will result in an overestimate of typical river flows. The use of the median would be more representative of typical flow conditions.	▪ Change would result in lower minimum flow requirements, reducing flow conservation. ▪ Changing the regulation may negate the established relationships between flow and benefits.	
The law and regulations do not allow SCDHEC to apply reasonable use criteria to agricultural surface water withdrawals or existing (pre-2011), nonagricultural surface water withdrawals. **PROPOSED:** Reasonable use criteria should be applied to all water use requests.	This change would allow for fairness for water use among all stakeholders, and could allow for additional permits in the basin.	▪ Should be part of a comprehensive process to address overallocation. ▪ Need to define "reasonable" and allow for growth. ▪ Existing regulations are sufficient. ▪ Should only apply to new and expanding users.	
Some existing surface water permits and agricultural registrations are for a quantity of water that withdrawers have no intention of ever using or needing. Existing regulations have varying or no authority to review and revise withdrawal quantities. **PROPOSED:** A user's actual water use and water needs, accounting for growth, should be periodically reviewed to prevent locking up water that is not needed.	This would be more reflective of actual water use in the basin and would support future growth. Also noted was an opinion that this policy reflects the fact that water use patterns by stakeholders will constantly change.	▪ Growth estimates can be subjective. SCDHEC should ensure realistic projections. ▪ Need clarity on review periods – utilities financed through 30-year bonds may not align well. ▪ Must consider capital spent on withdrawal capabilities.	
Water withdrawers are not subject to the same rules. **PROPOSED:** All water withdrawers should be subject to the same rules.	Allowing one class of withdrawals to be exempt from enhanced protection measures is problematic. Registrations and permits should be periodically reviewed. The importance of prioritizing critical services for health and safety (potable water supply, food production, and healthcare facilities) was also noted.	▪ May need different rules for conjunctive use. ▪ There is no one-size-fits-all approach. ▪ Could be cost-prohibitive to farmers. ▪ Priority should be given to existing users. ▪ Streamflow at existing withdrawal points should be protected from future upstream withdrawals.	

Technical and Program Recommendations

The RBC discussed numerous recommendations for technical information and programs. In lieu of voting, discussion revealed that there was generally broad consensus from the RBC in support of these recommendations, which should be taken as considerations for future river basin planning.

- The Edisto RBC recommends that SCDNR work with SCDHEC, USGS, and other partners (e.g., property owners, well owners, stakeholders representing CUAs) to enhance monitoring capabilities in areas where model simulations indicate potential for water levels to drop below the top of an aquifer.
- A potential Groundwater Area of Concern was noted in Calhoun County where, under certain modeling scenarios, simulations indicate water levels may drop below the top of aquifer. To better understand the conditions in this area, the Edisto RBC recommends that SCDNR work with SCDHEC and USGS to develop a regional groundwater model covering the potential Groundwater Areas of Concern and (1) further calibrate the model to local land conditions, including seasonal drawdowns; and (2), evaluate seasonal drawdowns through the planning horizon under each planning scenario.
- Incorporate lessons learned from other basins in future Edisto River Basin Plan updates.
- Incorporate future climate projections into modeling analyses (e.g., projected temperature, evapotranspiration, and precipitation trends).
- Study the impacts of land use changes on recharge and where feasibile, incorporate changes in recharge from changing land use into future modeling scenarios.
- Study the relationship between the duration of drawdown below the top of aquifer and negative impacts such as compaction and reduced aquifer yield. The Edisto RBC seeks to understand whether short-term, seasonal drawdowns below the top of aquifer are likely to cause harm.
- Develop and provide a handout of groundwater and surface water concepts to establish a common knowledge base among RBC members.
- USGS and/or SCDNR should offer additional demonstration and discussion of the groundwater model, focusing on input parameters and sensitivity of results to various parameters.
- Offer and organize additional field trips to better understand various water users' withdrawal needs and water management strategies. The RBC indicated that field trips helped members better understand the perspectives of the various water interest groups.

The RBC discussed, but did not reach consensus on making a recommendation that future RBC planning efforts should address water quality issues in the basin. The majority of members supported the proposed recommendation, noting that water quantity and quality are inherently linked. RBC members who did not support this recommendation indicated that the focus of planning should remain on water quantity and that there are already programs in place to address water quality.

Recommendations to Improve the River Basin Planning Process

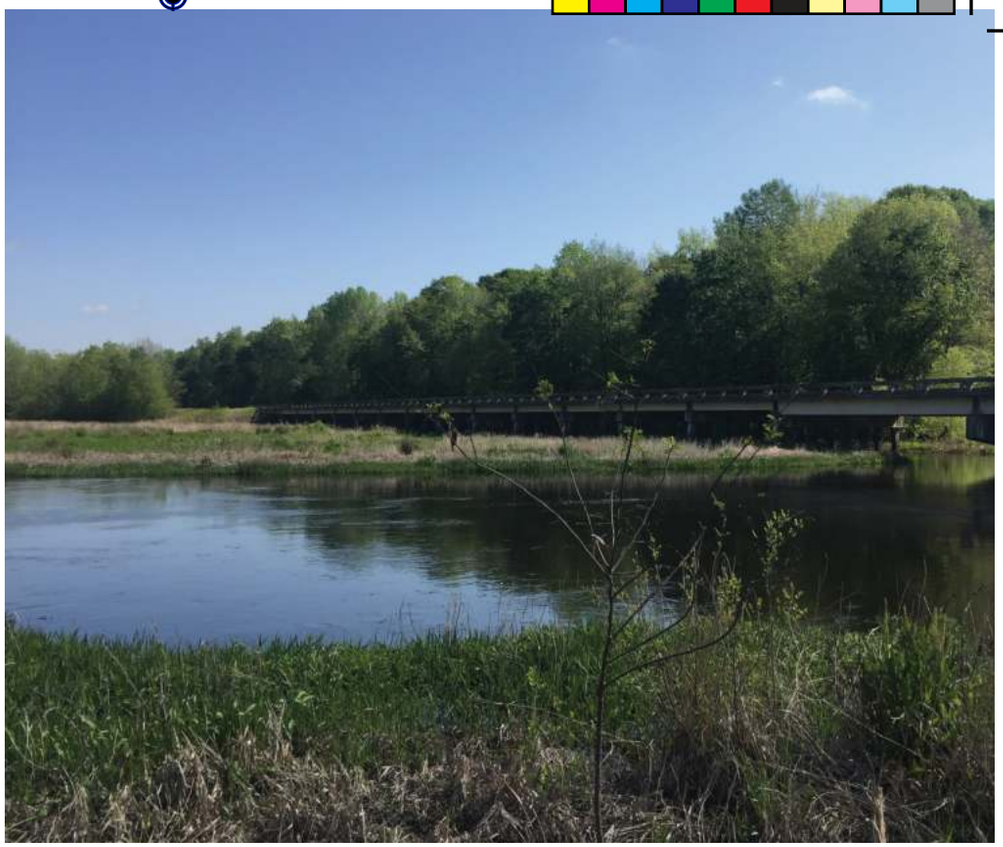
The river basin planning recommendations developed by the Edisto RBC are based on the RBC members' experiences with the process. More information can be found in Chapter 9.1. As the first RBC to convene and develop a River Basin Plan, Edisto RBC perspectives can be very useful to other RBCs as they go through the planning process. The Edisto RBC met monthly over an approximate 2-year period (June 2020 through November 2022), the first year of which was marked by the COVID-19 pandemic, and meetings were restricted to virtual gatherings followed by hybrid gatherings. This is a unique circumstance, but one from which other RBCs can learn. The recommendations that follow should be taken as considerations for developing future river basin plans.

Recommendations related to RBC membership, bylaws, meeting schedules, or procedures:

- Conduct an initial meeting to introduce and promote trust among RBC members.
- Establish attendance requirements. This may include providing a warning to members who miss a threshold number of meetings without a selected alternate attending in their place.
- Incorporate into the RBC bylaws a preference for in-person attendance with a hybrid option as needed, recognizing that it is not always feasible to travel to monthly meetings.
- Rotate the location of meetings to accommodate members from different regions of the basin, if possible.
- Send the previous meeting's summary just before the next meeting or briefly review past outcomes at the start of each meeting, time permitting.
- Accomplish the goals of the river basin planning process in fewer meetings than the Edisto RBC convened, if possible. The Edisto RBC noted that some meetings could likely be combined or reduced for future RBCs.

Recommendations to improve communication among RBCs and other groups:

- The Edisto and Santee RBCs should coordinate and participate in future monitoring, planning, modeling, and other activities focused on Calhoun County Groundwater Area of Concern, which extends into both basins.
- RBC members should communicate with legislative delegations throughout the river basin planning process to promote their familiarity with the process and its goals and to generate buy-in on its recommendations.
- The RBC should communicate through SCDHEC to the stakeholders that participated in the development of groundwater management plans and the establishment of CUAs.
- The RBC should communicate with the DRC as described in Chapter 8.2.2.



Recommendations for funding needs and sources:

- Most RBC members recommend that the river basin planning process remain fully funded so that regular updates to the plans can be made. Potential outside funding sources for implementation of the River Basin Plan's objectives are described in Chapter 10.

Recommendations to improve the public outreach process:

- During the implementation phase, the RBC should consider establishing a social media presence to engage with the public and share RBC activities.
- RBC members representing municipalities should consider including inserts in mailings to inform their customers of RBC activities.
- RBC members should describe the river basin planning process to customers and/or the public during ongoing outreach, education, or training programs.
- RBC members should be encouraged to present observations and outcomes of the river basin planning process at conferences that focus on water resources, sustainability, environmental stewardship, smart growth, and other related topics.

Recommendations to improve the River Basin Plan implementation process:

- The RBC should conduct quarterly meetings immediately following the release of the River Basin Plan to facilitate implementation and seek funding sources.
- SCDNR and/or RBC facilitators should offer new RBC member orientation to introduce basin concerns, strategies, and implementation plans.

ES-7 Edisto River Basin Plan Implementation

The RBC identified six key implementation objectives supported by short- and long-term strategies. Responsible parties are also designated, and budgetary cost estimates presented. Assuming that the plan will be updated in 5-year increments, the short-term actions are intended to span the first 5 years of implementation. Representative short-term actions for each of the six implementation objectives are presented in Table ES-5, and long-term strategies are presented in Table ES-6.

The six objectives were developed based on themes that emerged from the specific water management strategies presented in Chapter 7; the drought response strategies discussed in Chapter 8; and certain planning process, programmatic, and technical recommendations identified in Chapter 9. A summary of these recommendation-based chapters is included here in Section ES-6. The implementation plan and funding sources are summarized in the tables that follow.

Table ES-5. Implementation objectives, prioritization, and representative short-term actions.

Objective*	Representative Short-Term (5-Year) Actions**
Group 1 – Objectives related to water users	
Objective 1. Reduce demand to conserve water resources	▪ Identify funding opportunities ▪ Implement an outreach and education program ▪ Water withdrawers to implement conservation practices
Objective 2. Conserve surface water during low flow conditions	▪ Develop and implement communication strategy for low flow declarations ▪ Each affected user develops a curtailment schedule and implement it as necessary ▪ Evaluate effectiveness of the low flow management strategy
Objective 3. Augment sources of supply	▪ Implement an education and outreach program about conjunctive use and funding opportunities ▪ Individual withdrawers explore and implement an alternative water supply strategy
Group 2 – Objectives related to SCDNR activities	
Objective 4. Effectively communicate RBC findings and recommendations	▪ Edisto RBC to meet quarterly to focus on implementation and funding ▪ Encourage promotion of Edisto RBC activities on existing social media accounts ▪ Consider forming an Interbasin River Council to collaboratively address Groundwater Areas of Concern
Objective 5. Improve technical understanding of water resource management issues	▪ SCDNR continue ongoing research into land use impacts on recharge ▪ If monitoring indicates seasonal drawdowns below the top of an aquifer, consider developing a test program to monitor for possible impacts
Objective 6. Protect groundwater supplies and existing users	▪ Continue to monitor water levels in existing wells throughout the Edisto River basin ▪ Identify, seek access to, and monitor water levels in existing production wells in Groundwater Areas of Concern to confirm actual groundwater conditions

**The first three objectives were deemed to have equal priority. Objectives 4 – 6 are listed in order of priority*
***These examples are representative and do not reflect the complete list developed by the RBC, which can be found in Table 10-2.*

Table ES-6. Long-term planning objectives and strategies.

Objective and Strategy	Long-Term Strategy
Objective 1. Reduce demand to conserve water resources	
Agricultural conservation	Continue short-term goals. Adjust recommended actions based on water savings realized. Seek additional funding sources. Explore new technologies and incorporate them into recommendations as appropriate.
Municipal conservation	Continue short-term goals. Adjust recommended actions based on water savings realized. Seek additional funding sources.
Objective 2. Conserve surface water during low flow conditions	
Implement low flow management strategy	Continue short-term goals. Review and adjust strategy based on effectiveness and changing conditions.
Objective 3. Augment sources of supply	
Conjunctive use (use of groundwater to supplement surface water supplies)	Continue short-term goals. Monitor groundwater levels to assess impacts of increased groundwater usage.
Small impoundments (on tributaries)	Continue short-term goals. Monitor Edisto River basin streamflows to assess the impact of small impoundments on downstream flows.
Objective 4. Effectively communicate RBC findings and recommendations	
Conduct Edisto RBC meetings to review, initiate, and support implementation actions	Maintain a regular meeting schedule to encourage continuity between various iterations of RBC membership.
Encourage use of social media through professional accounts of Edisto RBC, SCDNR, SCDHEC, and/or RBC members	Continue short-term goals and assess impact.
Communicate with legislative delegation throughout planning process to familiarize them with RBC activities and goals in advance of funding requests	Continue regular communication to emphasize the ongoing work and impacts of the RBC.
Coordinate with the Santee RBC on future monitoring, planning, modeling, and other activities focused on the Calhoun County Groundwater Area of Concern	Continued collaboration as deemed necessary by cross-basin concerns and interests.



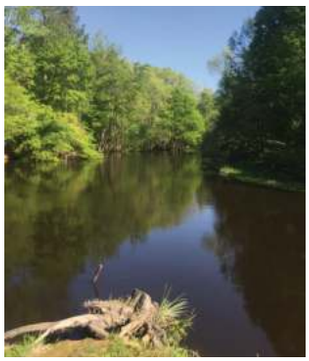
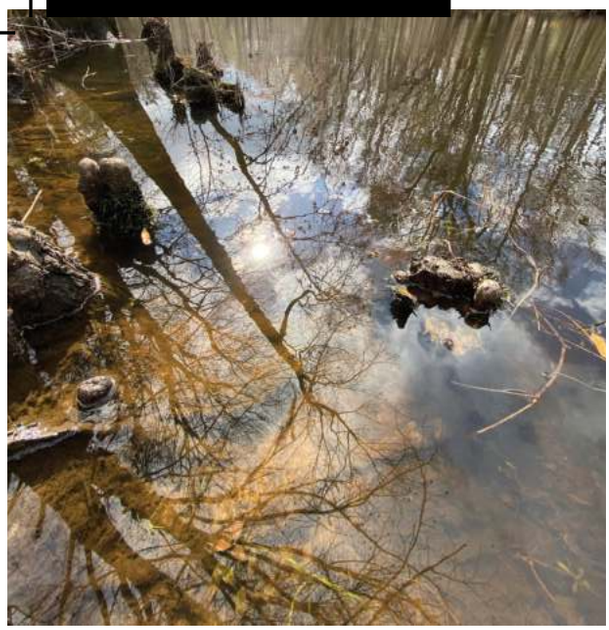



Table ES-6. Long-term planning objectives and strategies. (continued)

Objective and Strategy	Long-Term Strategy
Objective 5. Improve technical understanding of water resource management issues	
Research how changes in land use impact recharge	Incorporate land use projections and recharge impacts into future modeling efforts.
Develop a regional groundwater model to further evaluate potential drawdowns in Groundwater Areas of Concern (e.g., Calhoun County)	Continually improve groundwater model with new monitoring data. Use model to assess drawdown in potential areas of concern.
Research impacts of seasonal drawdown below the top of aquifer	Consider findings of analysis in next 5-year plan update. If water levels drop below the top of aquifer, determine approach to monitor impacts of such declines.
Objective 6. Protect groundwater supplies and existing users	
Enhance the groundwater monitoring program in Groundwater Areas of Concern	Continually assess groundwater level trends across the basin and seek to improve monitoring data as needed.
Work with SCDHEC and the CUA stakeholders to encourage new pumping in aquifers that can better support additional withdrawals, where applicable	If monitoring suggests increasing drawdowns in areas of concern: 1. Use a regional groundwater model to assess the impacts of redistributed future withdrawals. 2. Encourage that new pumping come from aquifers that can support the additional withdrawals.

Funding Opportunities

Existing federal funding sources may be leveraged to support river basin plan implementation. For example, EPA's Water Infrastructure Finance and Information Act program offers funding to support eligible water and wastewater infrastructure projects including those related to drought prevention, reduction, and mitigation. Other funding to support drought mitigation efforts may be available through the Federal Emergency Management Agency's Hazard Mitigation Grant Program (HMGP) or Building Resilient Infrastructure and Communities (BRIC) programs. The USDA offers numerous programs for farmers and ranchers to reduce risk from drought or to restore land impacted by drought. During the writing of this plan, Congress passed the Inflation Reduction Act, which may provide additional funding to programs related to agricultural conservation. On the state side, in September 2022, $70 million in USDA "Partnerships for Climate-Smart Commodities" funding was invested in two South Carolina two land-grant universities to promote "climate-smart" agricultural practices in South Carolina. There may be opportunities to leverage this new funding source to implement the agricultural conservation strategies recommended in this plan. A detailed list of funding programs and opportunities can be found in Chapter 10.



Implementation Considerations

As the Edisto RBC is the first to conclude the planning process and embark on implementation, one of the most important considerations will be its need to share lessons and suggestions with other RBCs for planning and implementing the plan. SCDNR will play an instrumental role in conveying information between RBCs, but other means of formal exchanges will likely emerge.

The Edisto RBC may encounter challenges in the implementation of the identified strategies, and this will necessitate adaptation, sharing of lessons, and regular periodic revisitations and updates to the plan. Some of the potential challenges include:

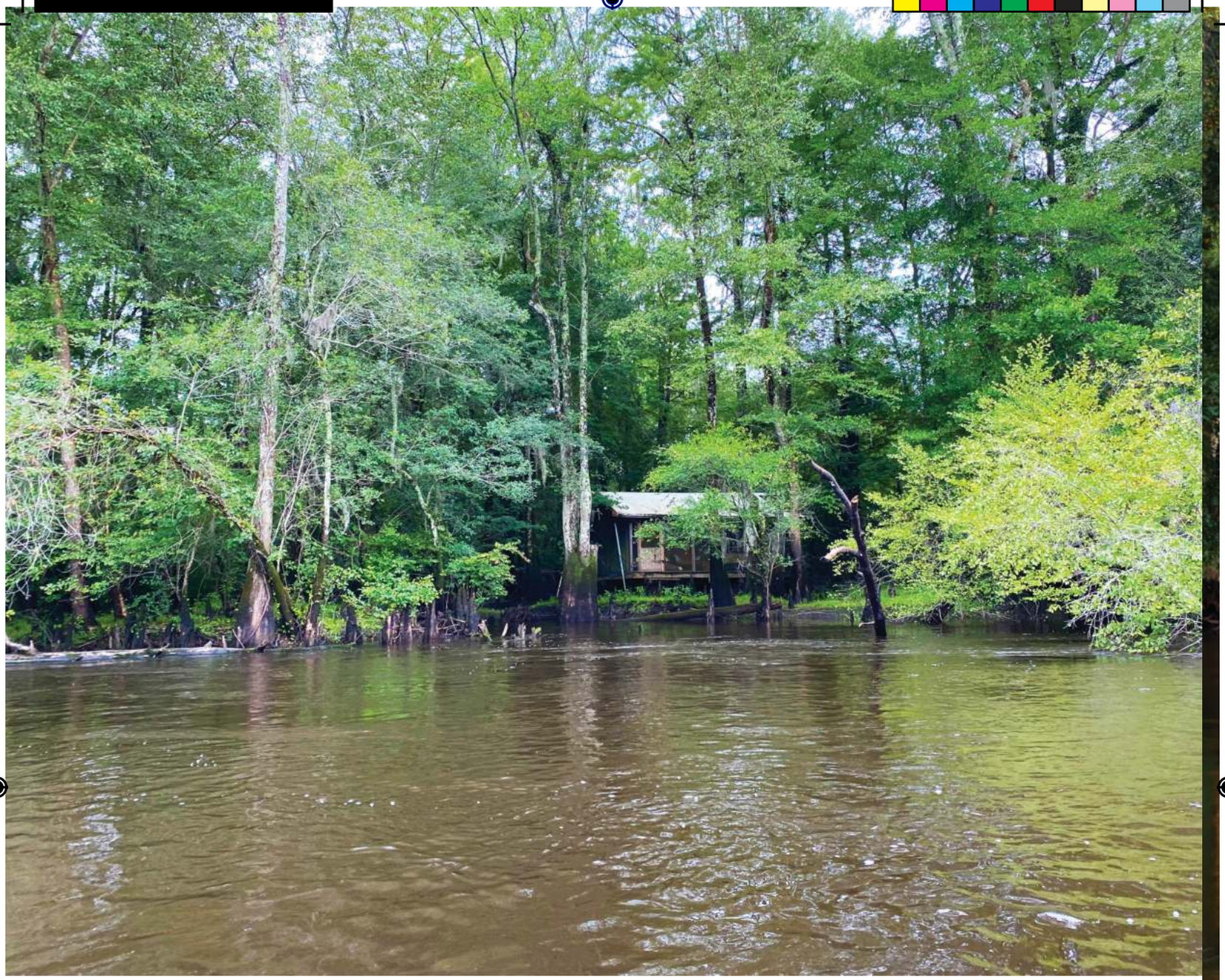
- ***Identification of sufficient funding.*** Withdrawers may have limited financial capacity to pursue the recommended water management strategies, and procedural assistance will likely be needed from the RBC and SCDNR.
- ***Timing of available funding.*** The identification of immediately available funding opportunities and the investigation of new funding sources are vital to implementation of the recommended near-term water management strategies. The RBC also noted that funding applications may present a technical or resource barrier to many water withdrawers. The provision of support for the development of applications could be key to securing funding for implementation.
- ***Stakeholder understanding and acceptance.*** The RBC has opportunities to influence decisions, and has presented its organized and collaborative recommendations in this plan, but has no authority to enforce recommendations in the basin. Stakeholder acceptance can result only from deliberate, coordinated outreach that is grounded in data and science.
- ***Maintaining momentum.*** Maintaining momentum will be critical for the durability of the plan, its effective early implementation steps, and its ability to adapt as social, economic, regulatory, political, and hydrologic conditions in the basin evolve. The Planning Framework states that the River Basin Plan should not be perceived as a static document and the RBC should not be a stagnant planning body between successive updates. Rather, the RBC is to be "actively engaged in promoting the implementation of the recommendations proposed" and "will continue to meet on a periodic basis to pursue River Basin Plan implementation activities as needed" (SCDNR 2019, p. 90). The Edisto RBC has already exhibited consistent dedication to the planning process and a commitment to continuing involvement.

Summary

The Edisto RBC has successfully followed the Plannning Framework to develop a River Basin Plan for the Edisto River basin. The plan includes consensus-based recommendations on water management strategies, including a low flow management strategy, as well as documented dialogue on major policy, legislative, and regulatory issues that should help inform decision-makers on a broad array of stakeholder viewpoints and priorities. The RBC has met the implicit goals of the planning process—to identify areas of consensus where possible, and to provide information that supports informed decisions where consensus within the RBC is not necessarily attainable or needed.

Because the Edisto RBC was the first of eight RBCs to convene, as the Edisto River Basin Plan is implemented, the RBC has a continuing responsibility unique to all other RBCs in the state. In addition to engaging regularly in Edisto River basin planning, one additional responsibility implicit in the State Water Plan update process is to lead by example, sharing lessons learned with and making suggestions to other RBCs about the planning process and its implementation. This will require coordinated efforts by SCDNR and the Edisto RBC, and creative outreach to engage with colleagues across the state in other RBCs.

This plan will also serve as an example of the creativity, thoughtfulness, and collaborative respect for different points of view that led to its adoption and implementation. Other RBCs can study its issues, recommendations, and viewpoints to help inform their own deliberations and produce River Basin Plans that will ultimately comprise the updated South Carolina State Water Plan.



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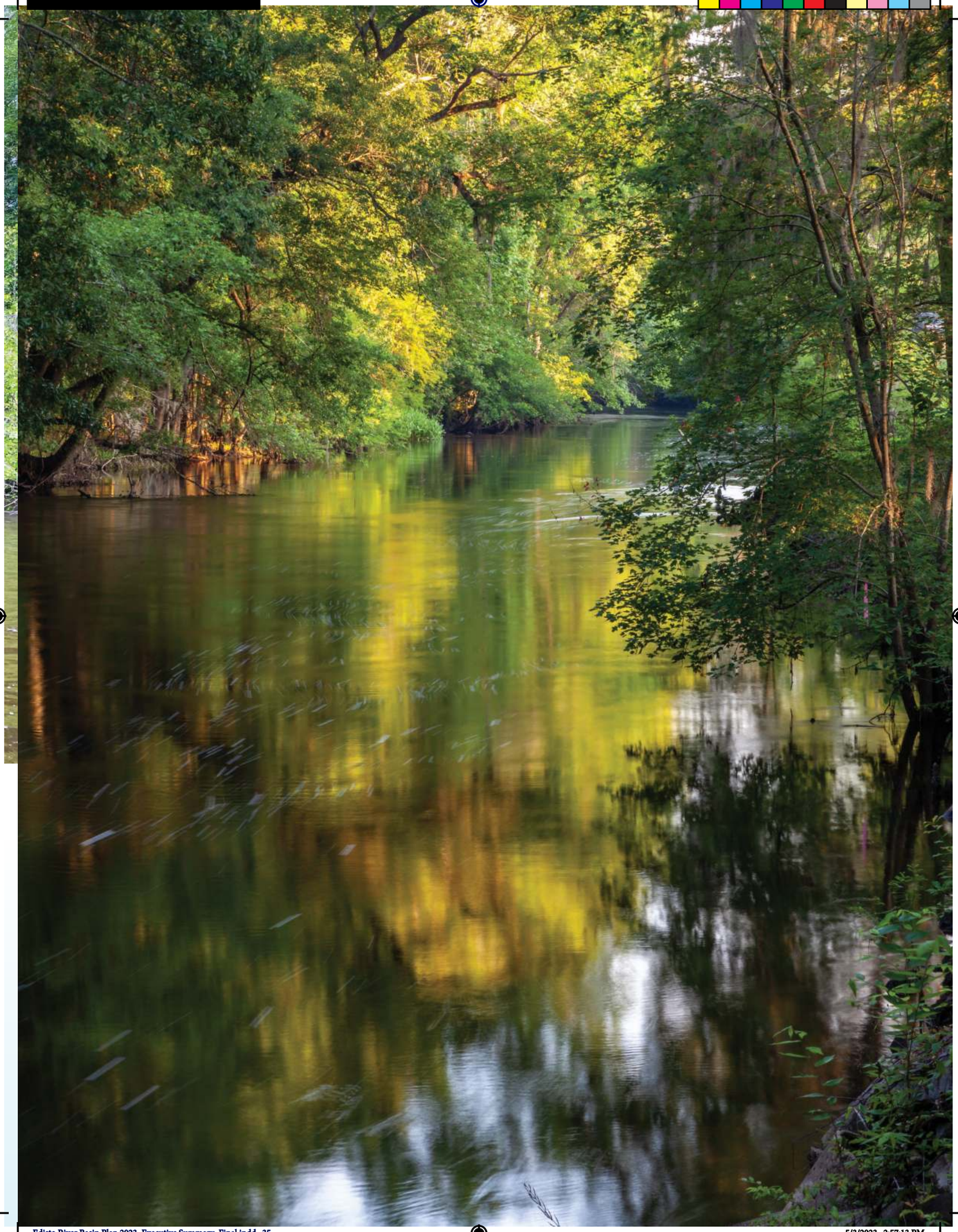

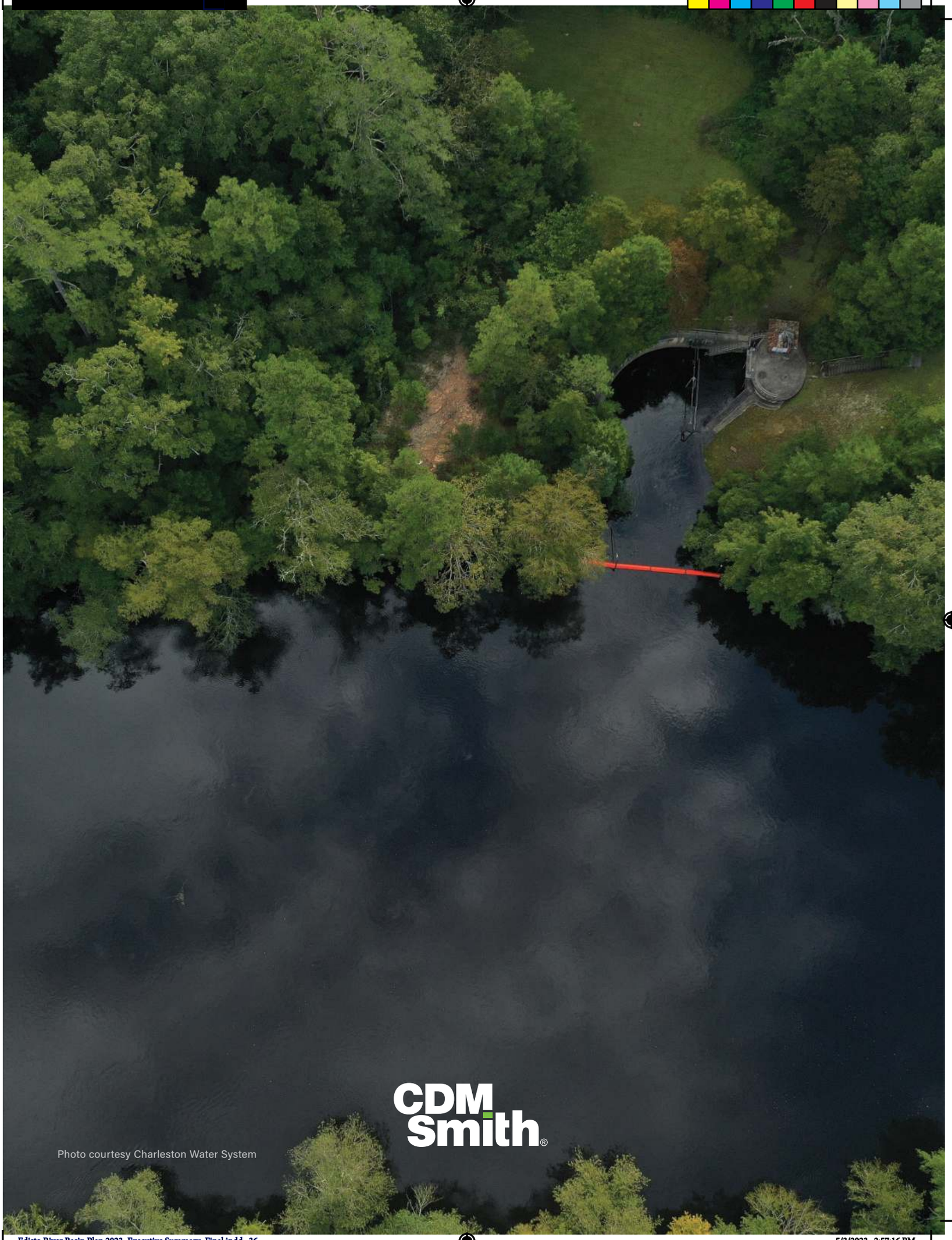

Photo courtesy Charleston Water System