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Hickory Knob State Park and Resort – McCormick, SC

November 11th, 2023

Ken Rentiers, Deputy Director – Land, Water, and Conservation Division SC Department of Natural Resources



Why Are We Here?

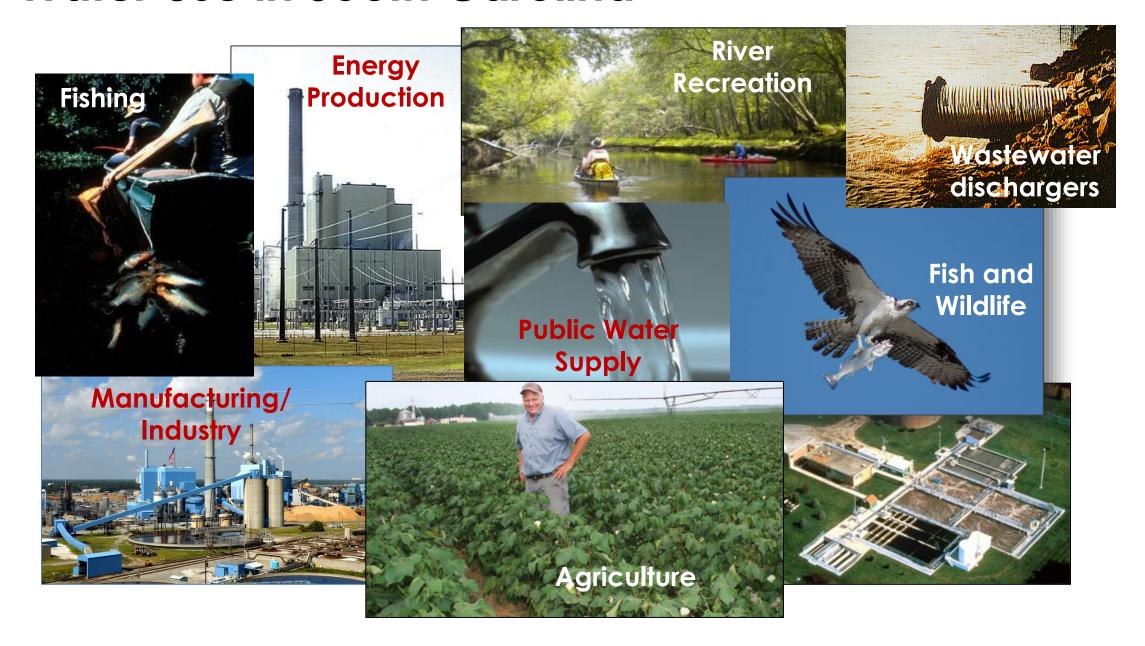
"The effective management of South Carolina's water resources is beyond the scope of any one agency or organization and will require cooperation and shared responsibility among federal, state, and local agencies, as well as public and private parties."

- South Carolina Water Plan (2004)



Water Use in South Carolina



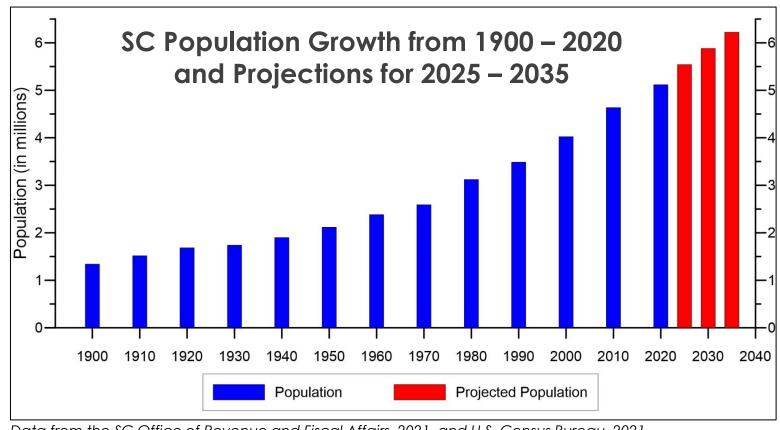






Population Growth → Increased Water Demand

- From 1990 2020, SC population increased from 3.5 to 5.1 million and is forecasted to increase to **6.2** million by 2035.
- Our growing population may increase future water demands and may increase competition for our water supplies.



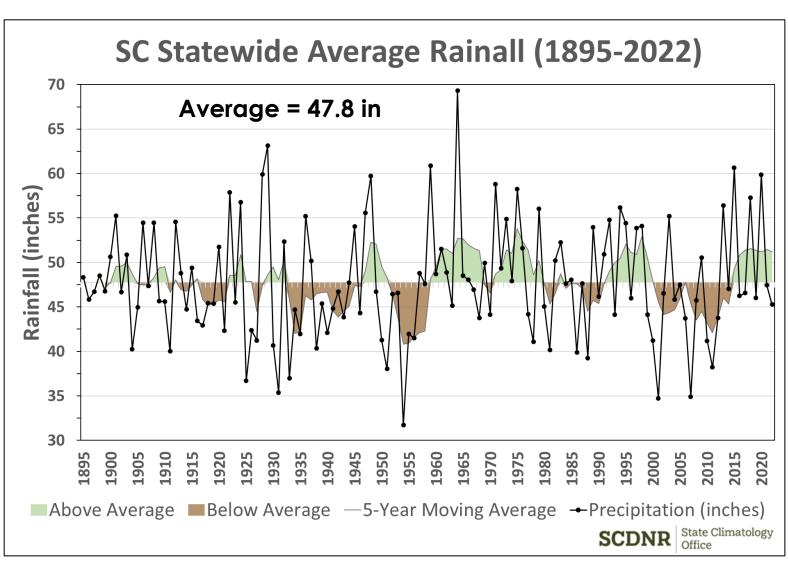
Data from the SC Office of Revenue and Fiscal Affairs, 2021, and U.S. Census Bureau, 2021.





Drought

SC generally has an abundance of water, but recent droughts (1998-2002, 2007-2008, 2011-2012, 2016, 2019, 2021) have stressed the State's water resources.







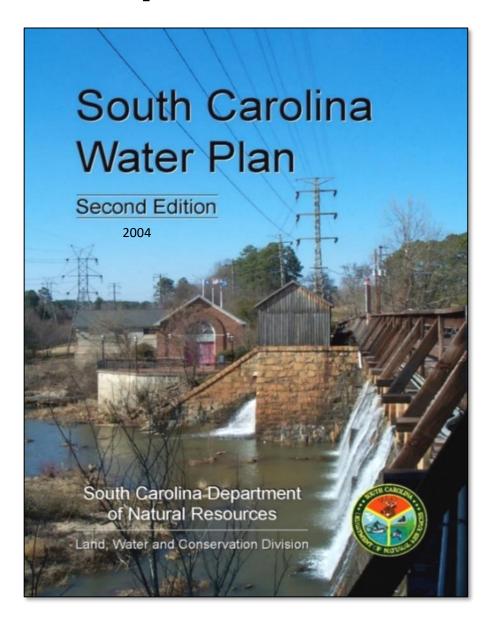
Tree-ring studies indicate the occurrence of more severe and longer-term droughts (Mega-droughts) over the past 400 years.

Uncertainty in future droughts + increased water demand = the need for comprehensive State and river basin planning.



History of State Water Planning



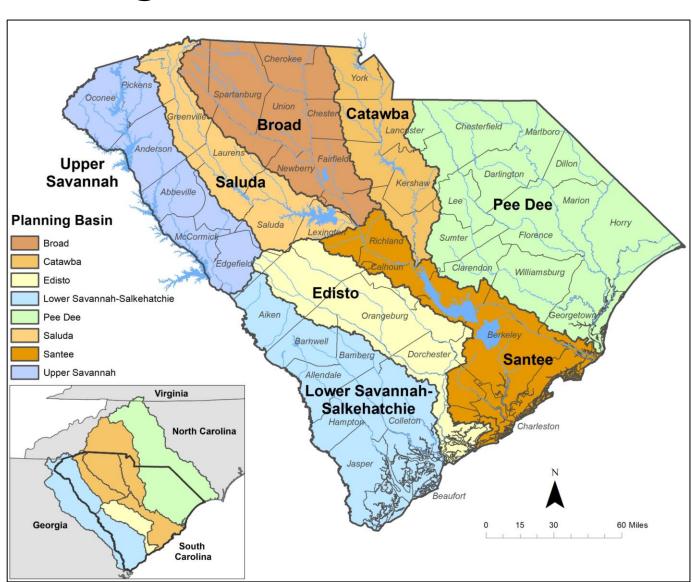


- SCDNR is legislatively mandated to develop a State Water Plan.
- SCDNR published the first edition of the State Water Plan in 1998.
- In 2004, SCDNR published the second edition of the South Carolina Water Plan incorporating lessons learned from the drought of 1998-2002.
- One recommendation was to develop a regional water plan for each major river basin in the State.

South Carolina's Eight Planning Basins



- River Basin Plans will be developed for the State's eight major river basins using a "bottom-up" approach where stakeholders in each basin lead the development of their basin plan.
- Collectively, the River Basin Plans will form the foundation of a new State Water Plan.

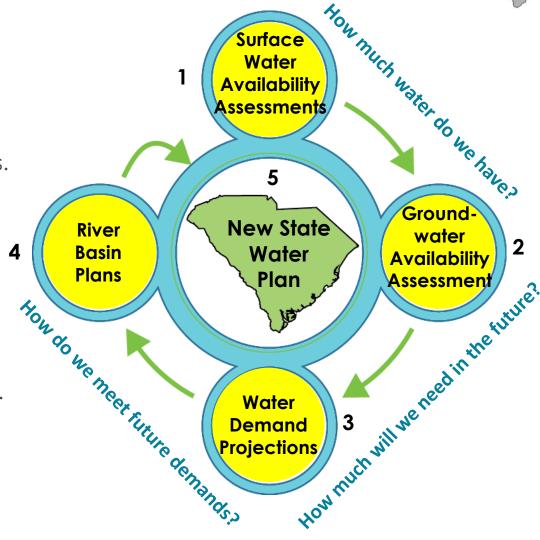


Five-step Process

- 1. Surface Water Assessments completed in 2017 for each basin (CDM Smith, Inc).
 - Several models recently updated.
- 2. Groundwater Assessment completed in 2021 (USGS).
 - 3 regional models to be developed over the next several years.
- 3. Water Demand Projections methodology report completed in October 2019.
 - Projections completed for Edisto and Broad basins.
 - Projections for Pee Dee, Saluda, and Upper Savannah basins in progress.

4. River Basin Plans

- Publication of South Carolina State Water Planning Framework.
- Edisto, Broad, Saluda, and Pee Dee basin planning in progress.
- Upper Savannah basin is the 5th basin to begin planning activities.
- **5. State Water Plan** River Basin Plans will form the foundation of a new State Water Plan.



















Stakeholder Participation













Planning Process Advisory Committee

- Convened by SCDNR in March 2018.
- Purpose develop a guidance document (Planning Framework) for developing River Basin Plans and for updating the State Water Plan.
- South Carolina State Water Planning Framework (Planning Framework) was published in October 2019 after an 18-month process.



Planning Framework is available for review and download at: https://hydrology.dnr.sc.gov/water-planning-framework.html

PPAC Committee Members

Jeffery Allen
David Baize
David Bereskin
Jesse Cannon
Fred Castles, III

Clay Duffie Steve Hamilton Erika Hollis J.J. Jowers, Jr.

Eric Krueger
Jeff Lineberger
Jill Miller
Dean Moss, Jr.
Myra Reece

Ken Rentiers
Bill Stangler
Landrum Weathers
Scott Willett
Charles Wingard

Clemson University SCAWWA/WEASC

Greenville Water

Santee Cooper

Catawba-Wateree Water

Management Group

Mt. Pleasant Waterworks (retired)

The Dunes Golf and Beach Club

Upstate Forever

Bamberg County citizen, Edisto

Engineers and Surveyors, Inc.

The Nature Conservancy

Duke Energy

South Carolina Rural Water Association

Beaufort Jasper WSA (retired)

South Carolina Department of

Health and Environmental Control

South Carolina Department of Natural Resources

Congaree Riverkeeper

Farmer

Anderson Regional Joint Water System

Walter P. Rawl and Sons, Inc.



For more information, visit:

https://www.clemson.edu/public/waterassessment/State_Water_Planning_Process_ Advisory_Committee.html

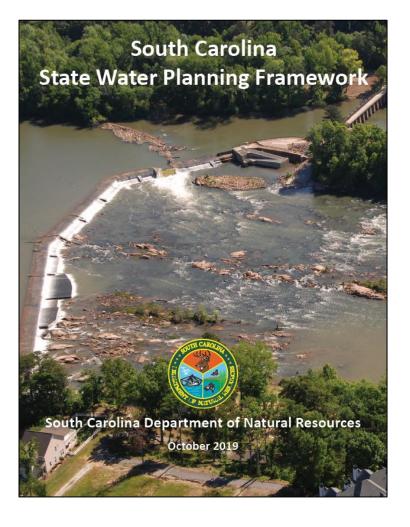


Contents of Planning Framework

Sections:

- 1. Executive Summary
- 2. Introduction
- 3. River Basin Planning Process
- 4. Methodologies for Evaluating Water Availability
- 5. River Basin Plan Table of Contents
- 6. River Basin Planning Process Implementation
- 7. River Basin Plan Implementation
- 8. State Water Plan

Appendix: River Basin Council Bylaws



Planning Framework is available for review and download at: https://hydrology.dnr.sc.gov/water-planning-framework.html

SC River Basin Planning: Status and Long-term Schedule

Recent Changes to Planning Basin Boundaries

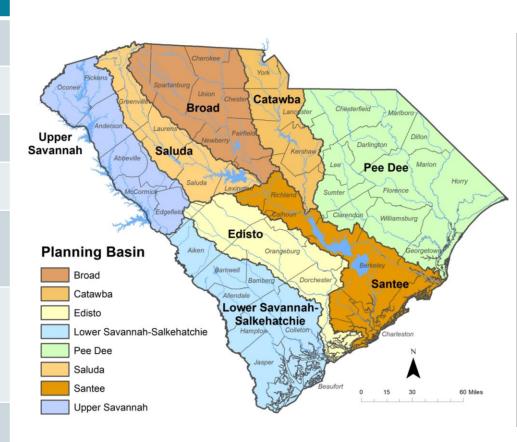




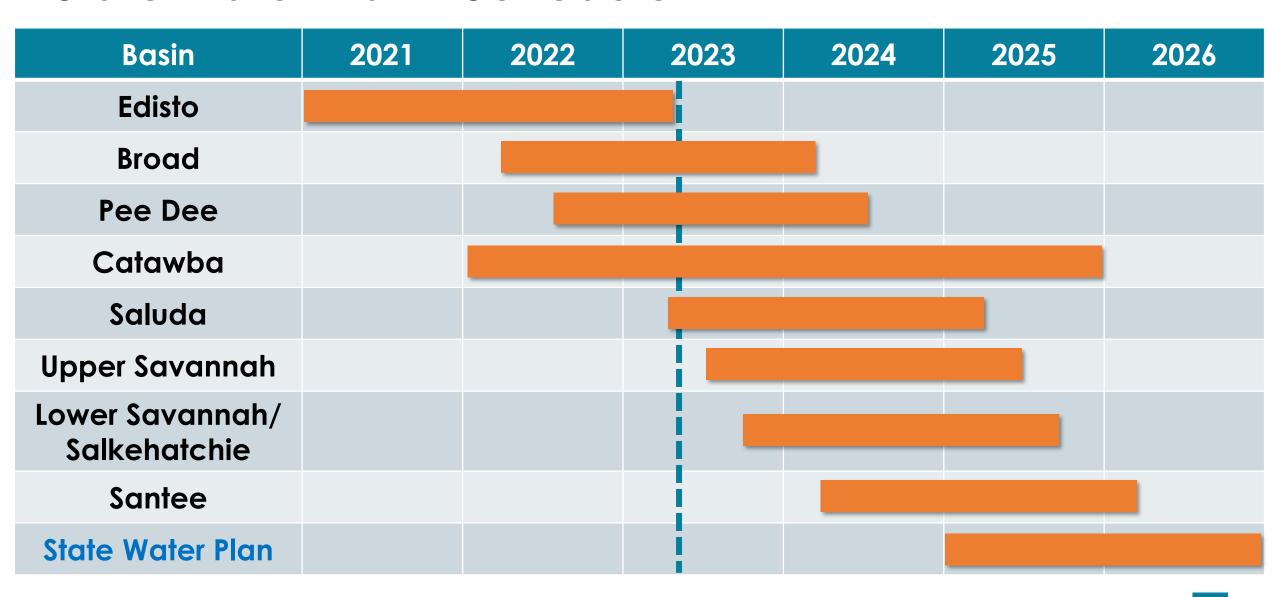


River Basin Planning Current Status

Basin	Status
Edisto	June 2020 – present
Broad	March 2022 – present
Pee Dee	June 2022 – present
Saluda	March 2023 – present
Upper Savannah	Scheduled to begin Summer 2023
Lower Savannah/ Salkehatchie	Scheduled to begin Fall 2023
Santee	Scheduled to begin Spring 2024
Catawba	CWWMG's Integrated Resource Plan in progress



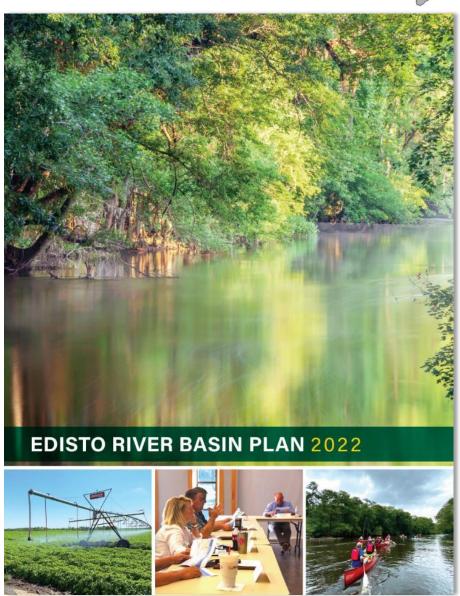
State Water Plan - Schedule



Draft Edisto River Basin Plan

- Draft Plan and Executive Summary available at: https://hydrology.dnr.sc.gov/edisto-river-basin-plan.html
- Public comments are currently under review by the RBC.
- Final plan expected later this Spring.



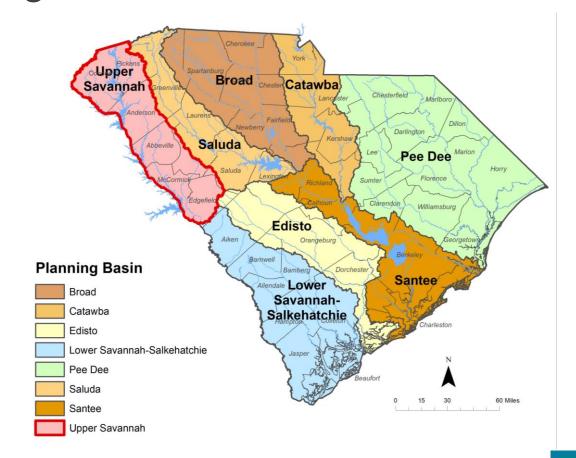


Where Are We Now?



Ready to start the Upper Savannah River basin planning process under the guidance of the Planning Framework







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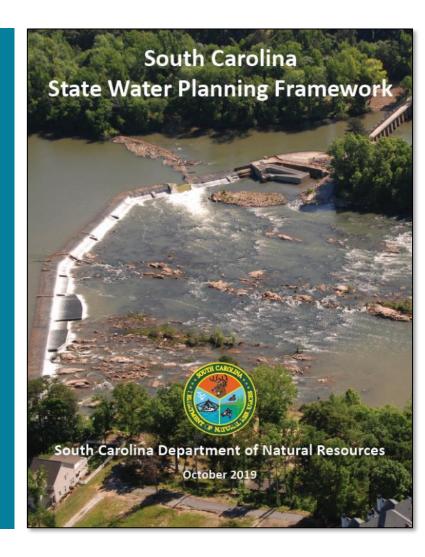
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What is a River Basin Plan?



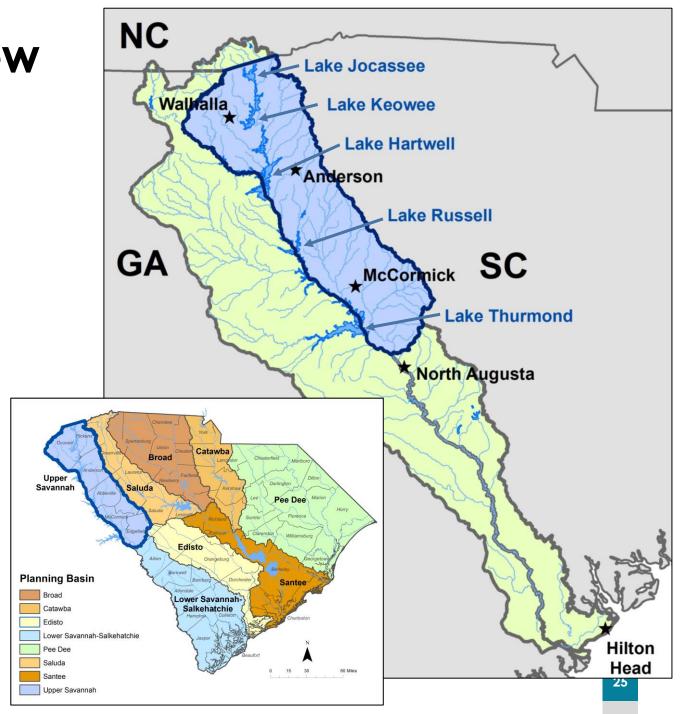
A River Basin Plan answers four questions:

- 1. What is the basin's current available water supply and demand?
- 2. What are the current permitted and registered water uses?
- 3. What will be the basin's water demand over the Planning Horizon, and will the water supply meet the demand?
- 4. What water management strategies will be employed to ensure the supply meets or exceeds the projected demand over the Planning Horizon?



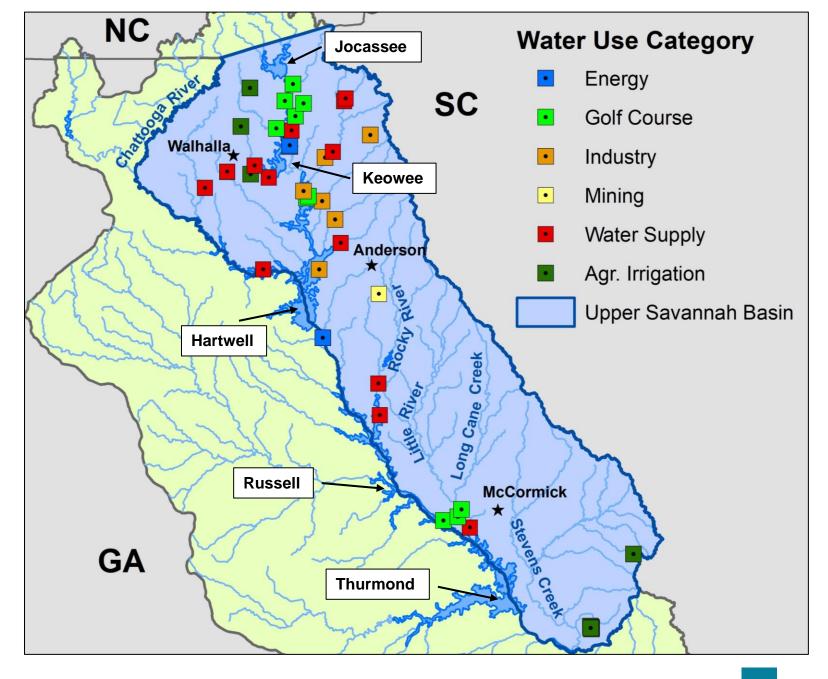
Savannah Basin Overview

- Length = 314 miles, with headwaters in the mountains of SC, GA, and NC.
- Spans 3 states NC, GA, SC
- Area = 10,577 sq. mi.
 - GA 5,821 sq. mi. (53.1%)
 - SC 4,979 sq. mi. (45.4%)
 - NC 171 sq. mi. (1.6%)
- Upper basin dominated by reservoirs operated by Duke Energy and the U.S. Army Corps of Engineers.



Upper Savannah Basin Water Use

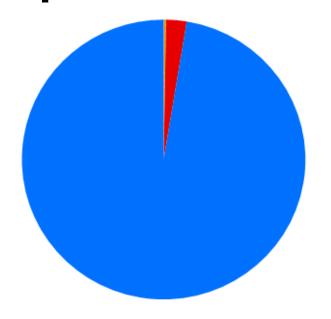
- More than 99% of withdrawals are from surface water.
- Planning will focus primarily on the basin's surface water resources.



2021 SC Reported Water Withdrawals







Thermoelectric (97.4%)

Water Supply (2.3%)

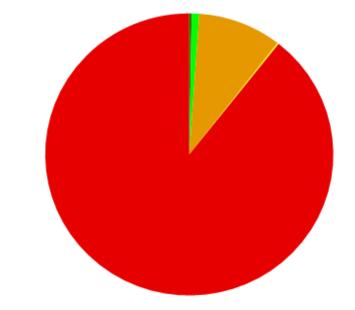
Industry (< 1%)

Golf Course (< 1%)

Agr. Irrigation (< 1%)</p>

Mining (< 1%)</p>





Water Supply (89.3%)

Industry (9.4%)

Golf Course (1%)

Agr. Irrigation (< 1%)</p>

Mining (< 1%)</p>

Source: SCDHEC Water Use Database

Reported SC Surface Withdrawals (2011-2021)

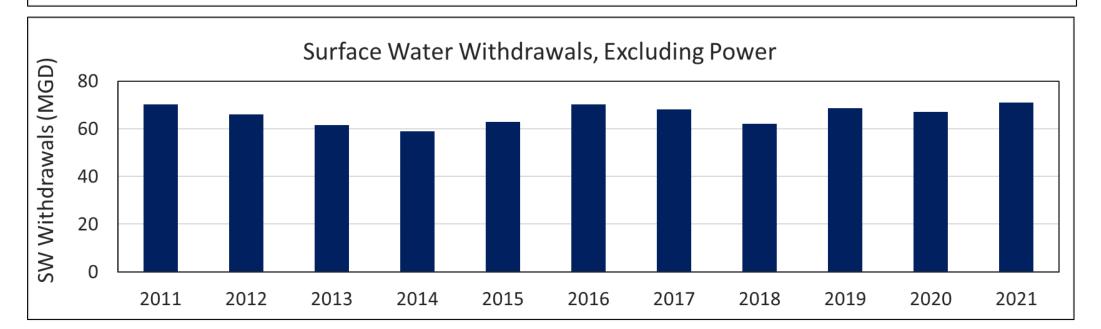
2.900



Surface Water Withdrawals, Including Power

- How will this demand change over the next 50-years?
- Will we have enough water to meet those demands?
- If not, how can we manage our water resources to meet future demand?

2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021





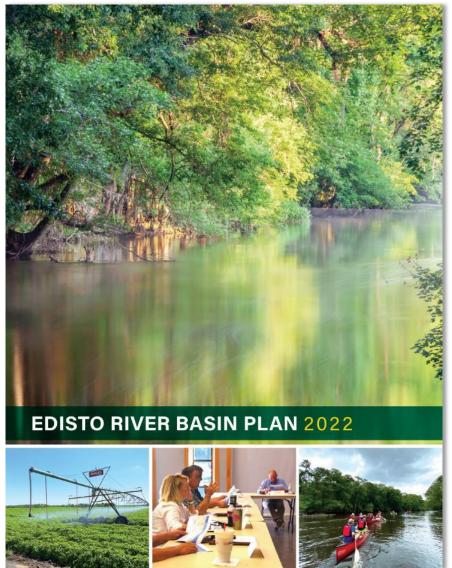
Guiding Principles

- Water is a limited natural resource and is a major factor for economic development and environmental protection.
- River Basin Plans should strive for the equitable use of water resources with the goal of ensuring water is available for all uses, when and where needed, throughout the Planning Horizon and under drought conditions.
- River Basin Plans should protect the public's health and well-being and should balance social, economic, and environmental needs.

Features of a River Basin Plan

- Stakeholder-developed.
- Covers a 50-year Planning Horizon.
- Considers both surface water and groundwater resources.
- Current focus is on water quantity not water quality with emphasis on drought conditions.
- Not a regulatory document but may include recommendations regarding State water policy, law, and regulations.
- Updated every 5-years water planning will be an ongoing process.
- Supported by hydrologic data, models, and water-demand projections.





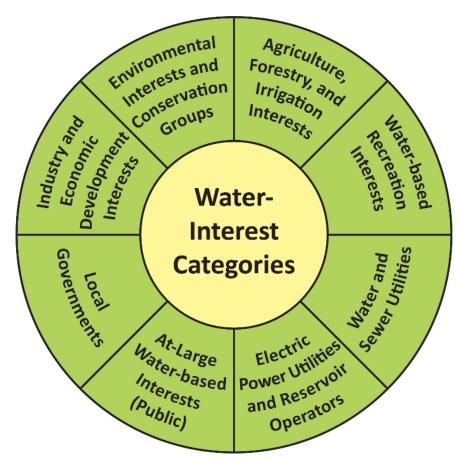
River Basin Plan Table of Contents

- 1. Introduction
- 2. Description of the Basin
- 3. Water Resources of the Basin
- 4. Current and Projected Water Demand
- Comparison of Water Resource Availability and Water Demand
- 6. Water Management Strategies
- 7. Water Management Strategy Recommendations
- 8. Drought Response
- 9. Policy, Legislative, Regulatory, Technical, and Planning Process Recommendations
- 10. Implementation Plan

How will the River Basin Plan be Developed?



- Stakeholder-led team responsible for developing the River Basin Plan.
- 25-30 members representing 8 interest categories.
- Governed by a set of Bylaws.
- Consensus based decision-making process.
- Chair and Vice-Chair elected by RBC.



River Basin Plans will be developed over a 2-year period

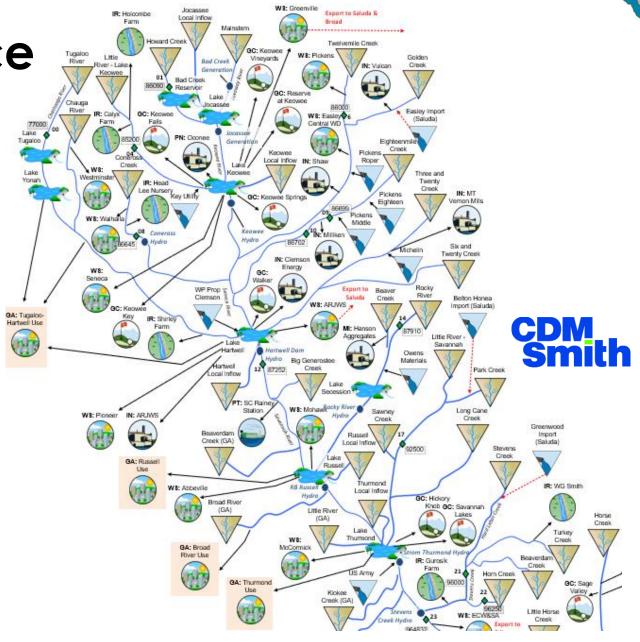
RBC Roles and Responsibilities

- Identify water shortages or conflicts using hydrologic models.
- Recommend strategies to mitigate or eliminate water use conflicts or water shortages.
- Communicate with stakeholders and the public on water planning activities.
- Coordinate with other formal water planning bodies.
- Recommend changes to water policy or legislation or to the water planning process.
- Help draft River Basin Plans.
- Update River Basin Plans every 5years and amend the plans as needed.



Upper Savannah Surface Water Model (SWAM)

Model is a decisionmaking tool used to assess water availability and management strategies, and will support the development of River Basin Plans





Water Demand Projections

- Water-demand methodology report released in October 2019 and available at:
 - https://hydrology.dnr.sc.gov/water-demand.html.
- Projections will be used in surface water model to assess future water availability and will support the development of River Basin Plans.
- Water-demand projections for the Upper Savannah basin will be developed by Clemson University and SCDNR.
- RBC will have opportunity to review and provide feedback on the basin's water-demand projections.







RBC Support



- Contractors (solicited and hired by SCDNR):
 - Meeting Facilitation (TBD)
 - Meeting Coordination (Clemson University) administrative and logistical support
 - Surface Water Modeling Technical support (TBD)
 - Public Outreach (Clemson University)
 - River Basin Plan report writing (TBD)
- Other State and Federal Agencies:
 - RBCs can request agencies to serve as Advisors.
 - Participate in RBC meetings and subcommittee meetings as requested.
- RBCs can request input from other outside Advisors.

PPAC and SCDNR will continue to provide oversight of the river basin planning process.

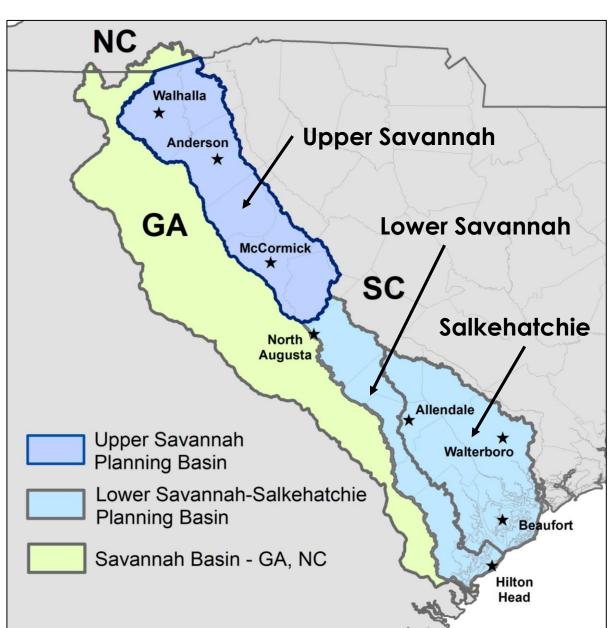




- Planning Framework recognizes the existence of other formal water planning groups and drought management groups.
- Planning Framework emphasizes coordination with such groups and provides general guidelines.
- Inter-basin River Councils (IRCs):
 - Made up of RBC members from two or more basins.
 - A forum for adjoining basins to communicate and coordinate on mutual interests and to resolve conflicts.

Coordination with Lower Savannah-Salkehatchie RBC

- Lower Savannah and Salkehatchie basins are defined as one planning basin.
- Lower Savannah-Salkehatchie planning activities will begin approximately 3 months after the Upper Savannah (Fall 2023).
- An IRC will be formed between the Upper Savannah planning basin and the Lower Savannah-Salkehatchie planning basin.



Limitations of the Upper Savannah River Basin Planning Process



- Process is **not** intended as a forum to evaluate and provide alternatives to:
 - the USACE's Drought Management Plan any future studies regarding the Drought Management Plan will be led by the USACE in a separate process.
 - Duke Energy Reservoir Operations already evaluated and stipulated through the Federal Energy Regulatory Commission (FERC) licensing process.
- Planning will focus on demand-side water management strategies and supply-side strategies on tributaries.

Upper Savannah River Basin Planning – Public Meeting #2



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Mar - Apr 2023

- Public kick-off meetings
- Solicit RBC applications
- Solicit Contractors (in progress)

May - Jun 2023

- Appoint RBC members
- Finalize contractors
- Planning Team
 (SCDNR, SCDHEC,
 Clemson, contractors)
 begins to meet

July 2023

First RBC meeting

Aug 2023 – Jun 2025

Monthly RBC meetings

June – July 2025

Completed River
 Basin Plan

RBC Membership Qualifications and Considerations

- SCDNR appointments based on the following criteria:
 - Applicant's credentials
 - Knowledgeable and experienced in their interest category.
 - Must either reside, work or officially represent an entity having a significant water resource interest in the basin.
 - Additional qualifiers membership on the State Drought Response Committee, for example.
 - Recommendations and endorsements submitted by various interest groups or organizations.
 - Geographic diversity.
 - PPAC recommendations.

SCDNR will strive for a balanced RBC representation!

Membership Terms and Commitment Considerations

- Initial terms are 2, 3 or 4 years.
- Subsequent terms of 3 years (each additional term subject to SCDNR approval).
- RBC members can serve up to 3 consecutive terms.
- Considerations for RBC applicants:
 - Multi-year commitment.
 - Monthly in-person meetings (held during normal business hours).
 - Subcommittee meetings.
 - Review of various technical reports and other documents.
 - Help write and review the River Basin Plan.
 - Annual meetings between iterations of the River Basin Plan (possibly higher frequency).

Upper Savannah River Basin Council Application Process

Applicants should carefully consider the time commitment and workload required to an RBC member.



UPPER SAVANNAH RIVER BASIN COUNCIL MEMBERSHIP APPLICATION FORM

Last Name:	First Nan	e:
Address:	20	Phone 1:
		Phone 2.
City:	State:	ZIP:
Organization/Company:		<u> </u>
Position:	E-mail:	
Indicate which one Interest Category yo	ou are requestin	g to represent (required):
	tion Interests	 Industry and Economic Development Interests
Local Governments		Water-based Recreation Interests
Water and Sewer Utilities		Environmental Interests
 Electric-Power Utilities and Nor Reservoir Operators 	ı-Federal	At-Large Water-based Interests
How are you affiliated with this Inter-	act Catagogy?	The Enige Water bused interests
The state of the s	out Guitegory.	
Describe your relevant qualifications Explain how you would apply your sk the Upper Savannah River Basin:		·
	ilis and experie	ice to assure successful water planning for
the Opper Savannan River Basin:	ilis and experie	ice to assure successful water planning for
The completed application and any	•	Ken Rentiers, Deputy Director

https://hydrology.dnr.sc.gov/uppsav-basin-planning.html

RBC Application Process



- Application period: Apr 10th May 8th, 2023.
- Application forms available on SCDNR website:

https://hydrology.dnr.sc.gov/uppsav-basin-planning.html

- Application forms and recommendations should be sent to Ken Rentiers (see application for contact information).
- Application review period: May 8th, 2023 May 31st, 2023.
 - PPAC will review applications and make recommendations to SCDNR.
- Final selection and notification by June 15th, 2023.
- Applicants not appointed for membership may be placed on a waiting list.

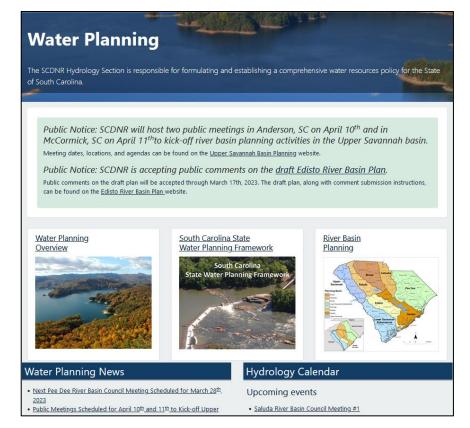


Stakeholder/Public Participation Guidelines

- Guidelines for stakeholder and public participation described in Section 3.7 of Planning Framework.
- Public meetings (3 to 4 per basin):
 - Prior to first RBC meeting "kickoff" meeting(s).
 - After draft River Basin Plan is released.
 - After final River Basin Plan is released.
- Draft River Basin Plan public review period (30 days).
- RBC meetings:
 - Open to the public.
 - Each meeting will include public comment period.

SCDNR Hydrology Website

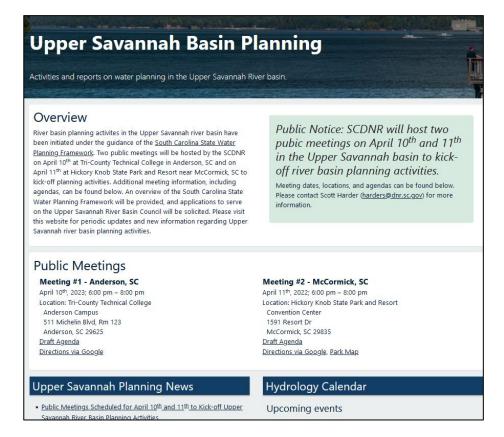




https://hydrology.dnr.sc.gov/water-planning.html

Site will host:

- Announcements/Calendar of Events
- Access to water planning documents Planning Framework, technical reports
- RBC meeting materials agendas, presentations, recordings



https://hydrology.dnr.sc.gov/UppSav-basinplanning.html

Contact Information

Alex Pellett pellettc@dnr.sc.gov

Scott Harder

harders@dnr.sc.gov



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