Prepare for first and second public meetings presenting the Draft and Final River Basin Plan

First Public Meeting – Draft Agenda

Topic	Minutes	Possible Speaker(s)
RBC Member Introductions, Planning Process Overview, Outline of Presentations	10-15	Hank, Ken, Jeff, John
Current and Projected Water Demands	5	John
Groundwater Modeling – Scenarios and Results	5	Laura
Surface Water Modeling – Scenarios and Results	5	John
Streamflow Ecology Relationships	5	David
Water Management Strategies		
▪ Agriculture Demand-side Strategies (examples)	5	Jeremy
▪ Municipal Demand-side Strategies (examples)	5	Eric
▪ Supply-side Strategies	3	John
Low Flow Management Strategy	5	Jason
River Basin Plan Recommendations	5-10	Hank or John
Overview of the 5-Year Implementation Plan	5-10	Hank or John
Public Comment Period and Q&A	30-60	Jeff, Tom or John

Working (DRAFT) Slides for Public Meeting Follow

Edisto River Basin Plan Public Meeting

January __, 2023

Edisto River Basin Plan – Public Meeting Agenda

• Welcome and Introductions	6:30 – 6:40
• Overview of the Planning Process	6:40 – 6:50
• Draft Edisto River Basin Plan Highlights	6:50 – 7:50
• Public Comments and Q&A with the RBC	7:50 – 8:20
• Submitting Comments of the Draft Plan	8:20 – 8:30
• Adjourn	8:30

Welcome and Introductions

Edisto River Basin Council

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

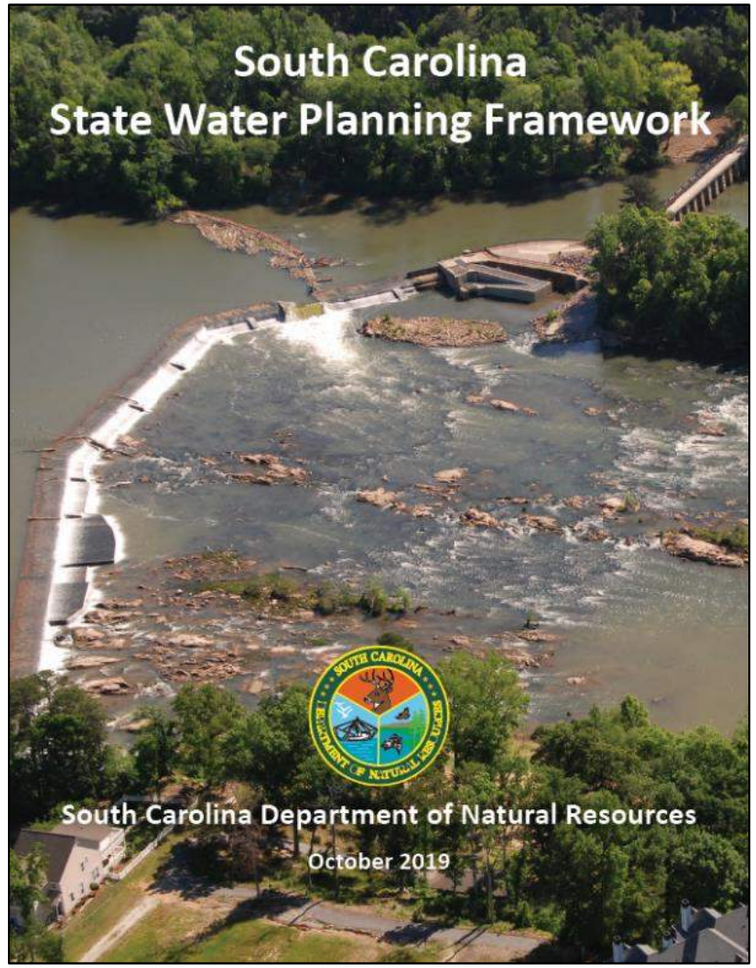
Cooperators and RBC Support Provided by:

Overview of the Planning Process

What is a River Basin Plan?

A River Basin Plan answers four questions:

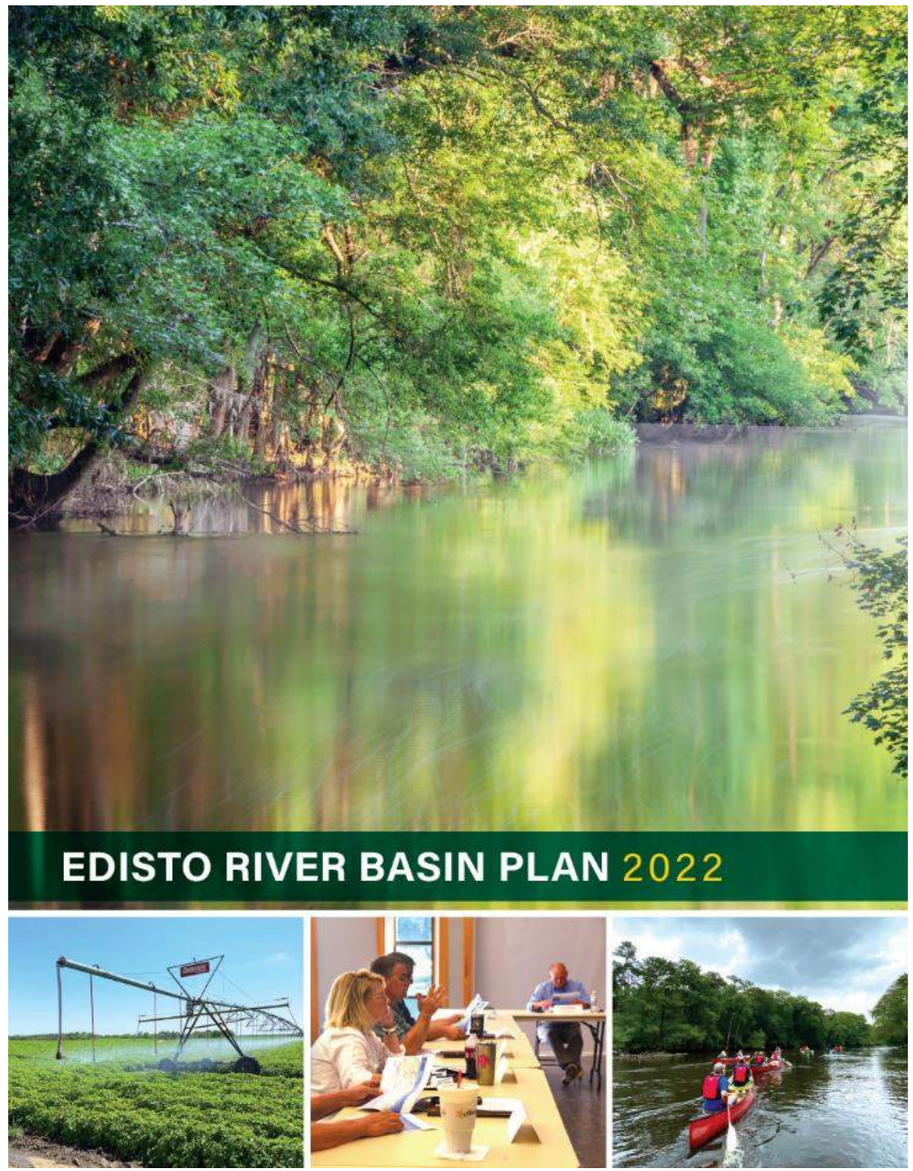
1. What is the basin's current available water supply and demand?
2. What are the current permitted and registered water uses?
3. What will be the basin's water demand over the Planning Horizon, and will the water supply meet the demand?
4. What water management strategies will be employed to ensure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



Proactive Water Management, not Reactive!

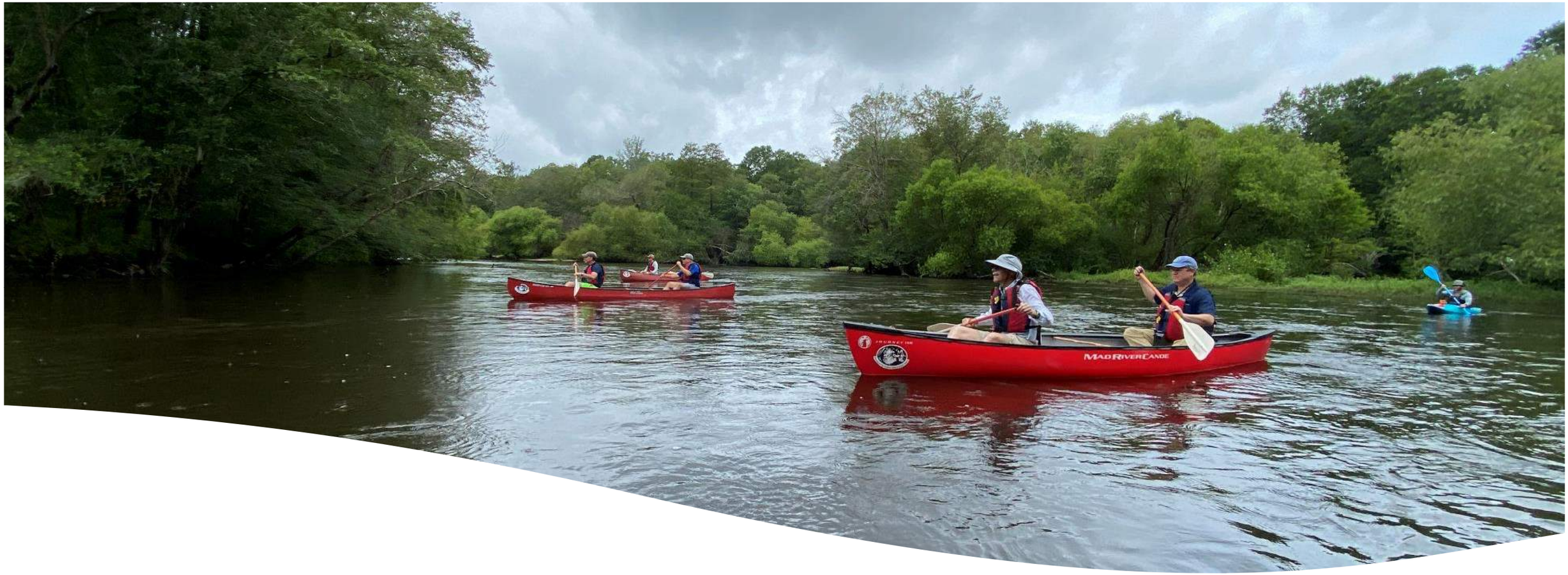
Features of a River Basin Plan

- **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 is 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.



The Four Phases of the Planning Process

Phase 1	• Develop a vision statement and goals • Learn about the basin's water resources and modeling tools • Evaluate water demand projections
Phase 2	• Evaluate current and future water availability issues • Identify and quantify potential water shortages through year 2070 for several water demand scenarios
Phase 3	• Develop and evaluate water management strategies • Recommend and prioritize strategies
Phase 4	• Develop legislative, policy, technical and planning process recommendations • Prepare the River Basin Plan that includes an implementation plan, Identifies drought response initiatives, and considers public input



Draft Edisto River Basin Plan Highlights

Draft Edisto River Basin Plan Highlights

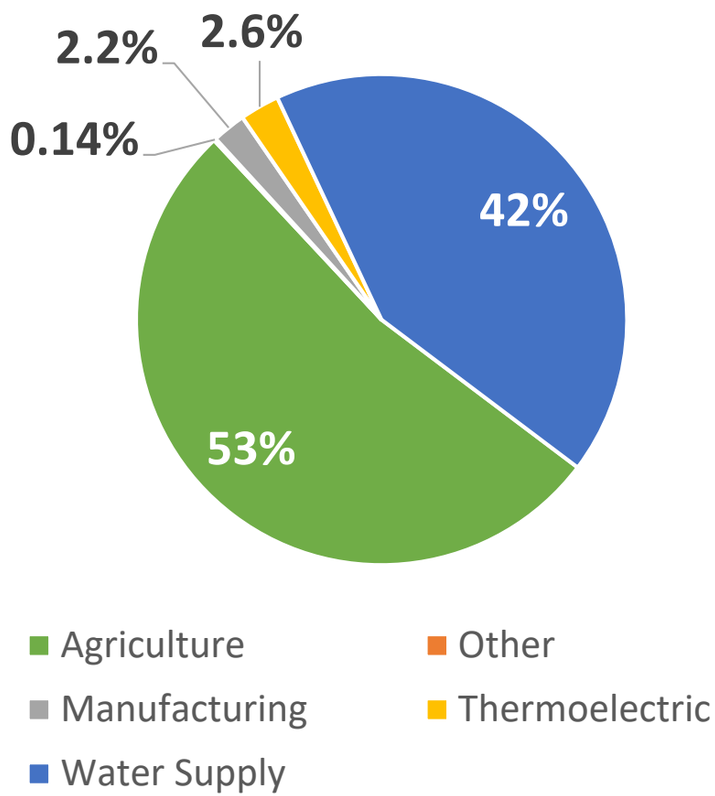
We will Review:

- Current and projected water demands in the basin
- Results of current and future water availability assessment
- Streamflow-ecology relationships
- Recommended water management strategies
- Other Plan recommendations and implementation approach
- Issues and challenges

Current water demands in the basin

Water Use Category	Groundwater (MGD)	Surface Water (MGD)	Total (MGD)
Agriculture	61	18	**79**
Public Supply	6	57	**63**
Manufacturing	2	1	**3**
Thermoelectric	4	0	**4**
Other	0.2	<0.1	**0.2**
Total	**74**	**76**	**150**

Most numbers are rounded to the nearest 1 MGD



Key Finding

Only 17 Percent of the Permitted and Registered water amount is currently being used in the basin

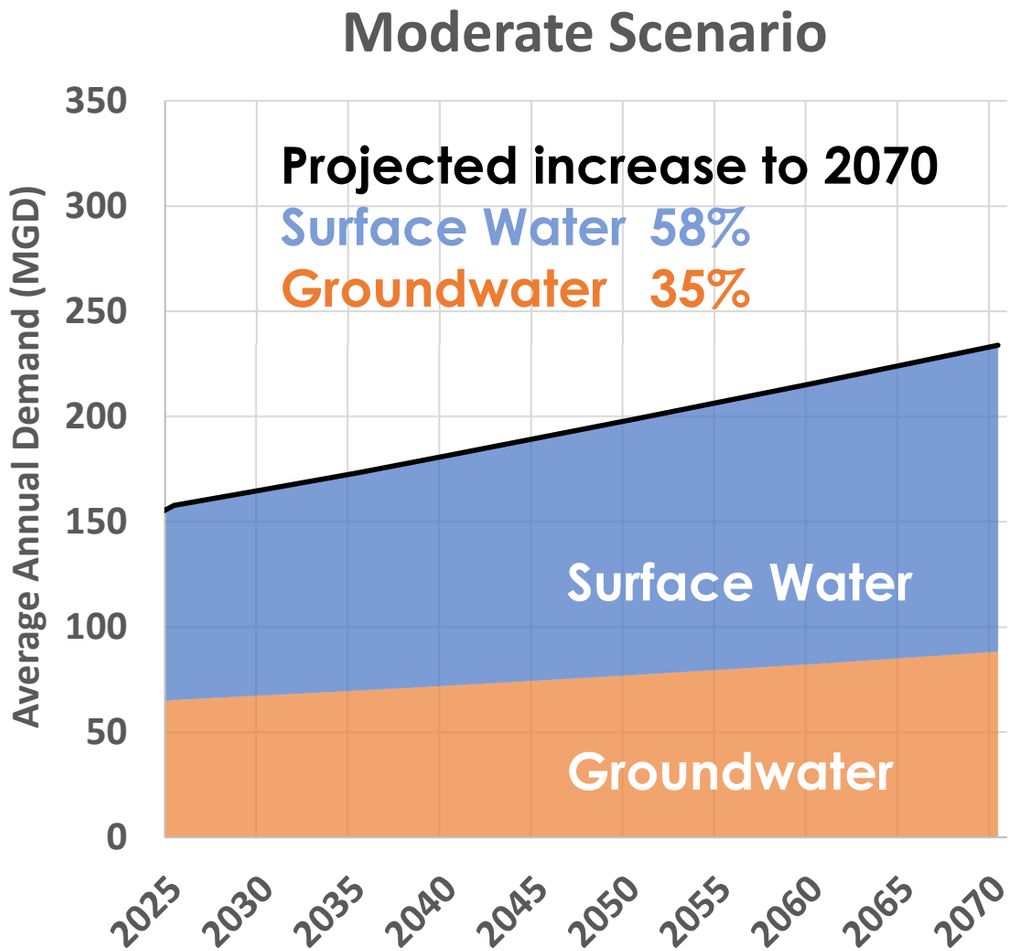
	Groundwater (MGD)	Surface Water (MGD)	Total (MGD)
Currently Used	74	76	150
Permitted and Registered Amount	119	747	866
Percent of Total Permitted and Registered Amount Currently in Use	62%	10%	17%

Projected water demands in the basin

Key Finding

Moderate Growth Scenario demands are projected to increase from 150 MGD (currently used) to 234 MGD by 2070

2070 water demands for this scenario are 27% of Registered and Permitted amounts

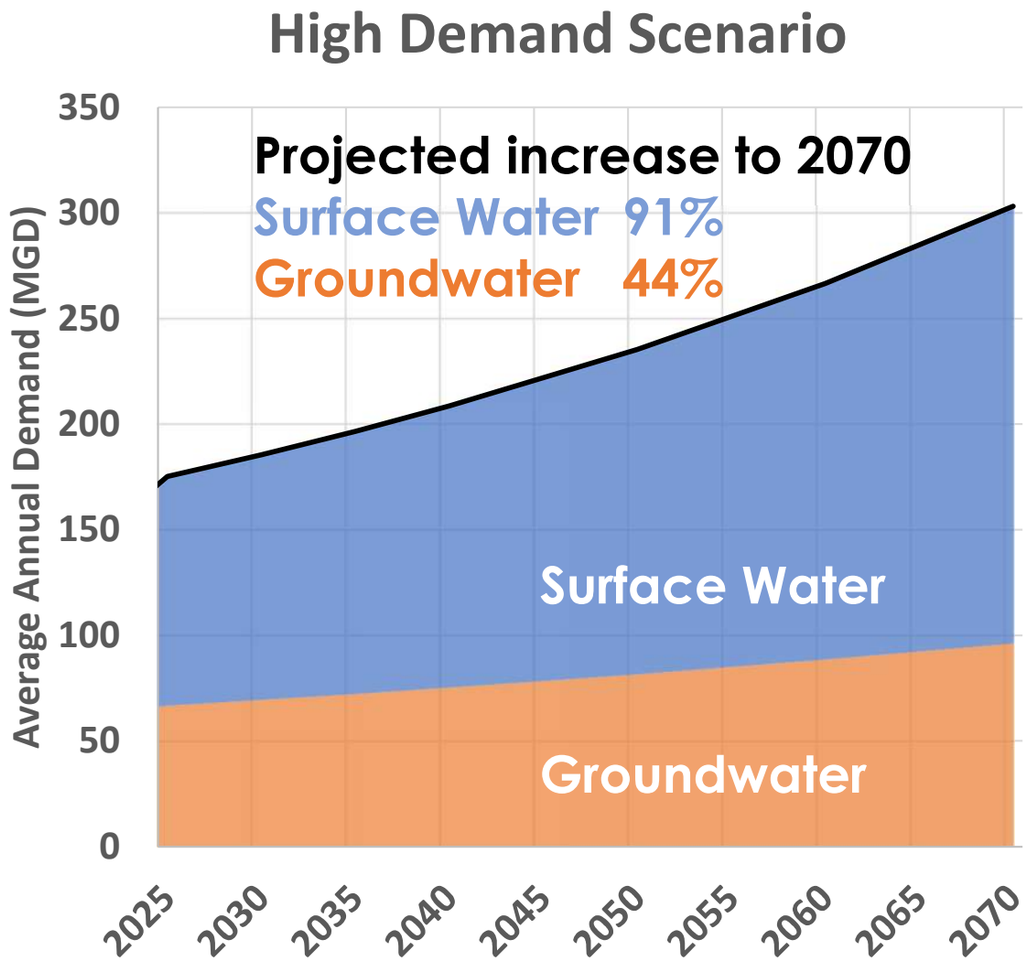


Projected water demands in the basin

Key Finding

High Growth Scenario demands are projected to increase from 150 MGD (currently used) to 303 MGD by 2070

2070 water demands for this scenario are 35% of Registered and Permitted amounts

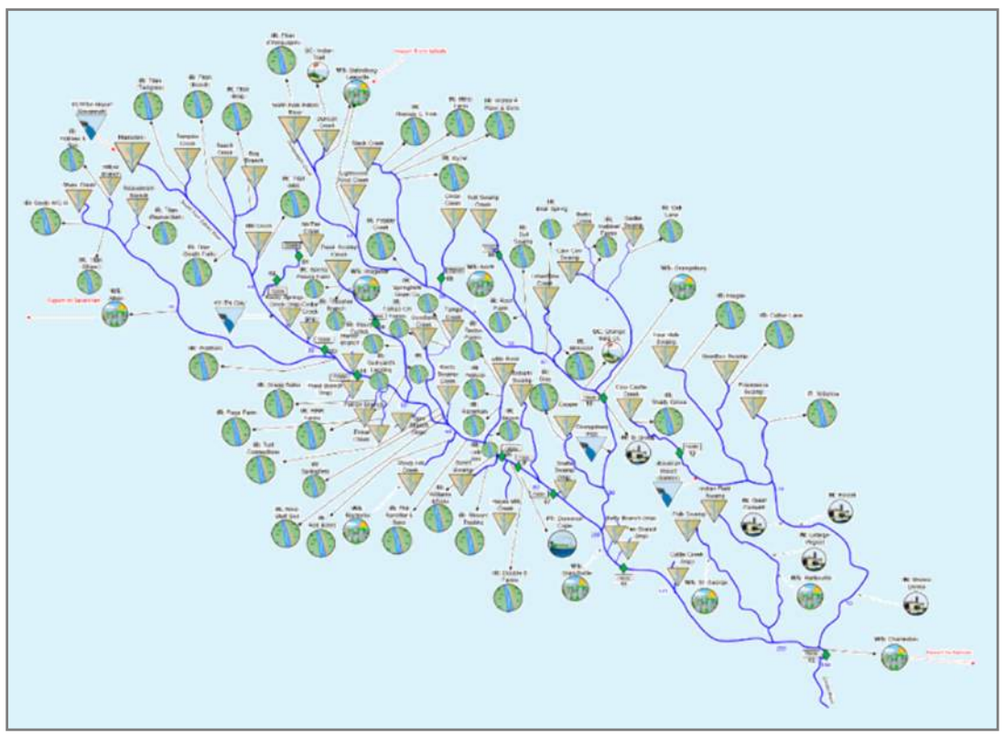


Current and Future Water Availability Assessment

Surface and groundwater models were used to compare available supply to current and projected water demands

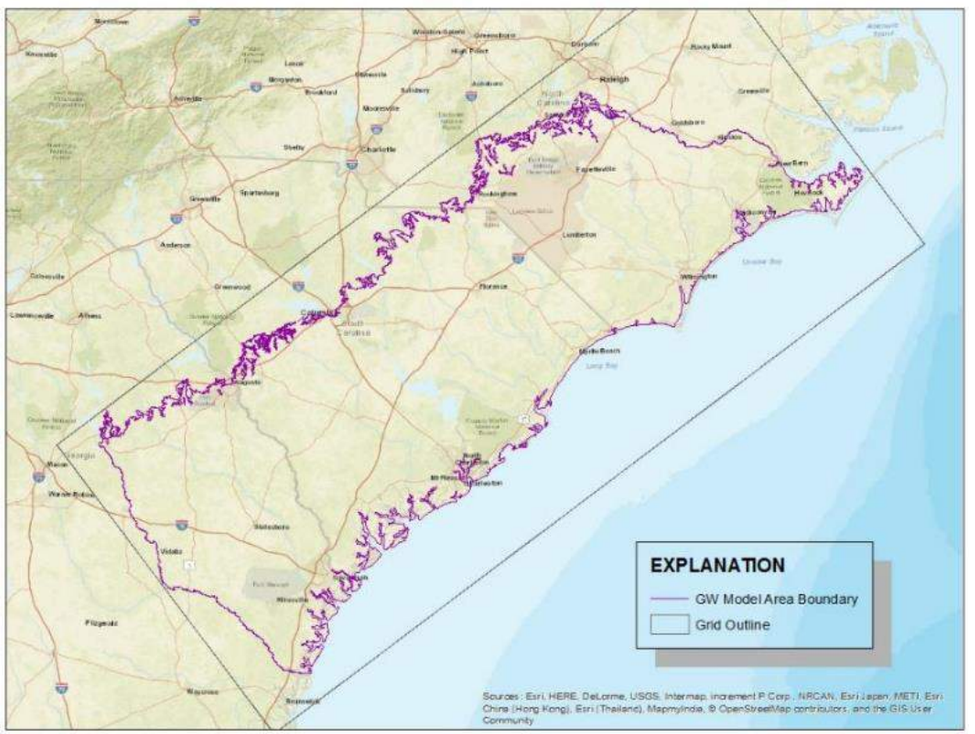
Surface Water

Simplified Water Allocation Model (SWAM)



Groundwater

USGS Atlantic Coast Plain Groundwater Model

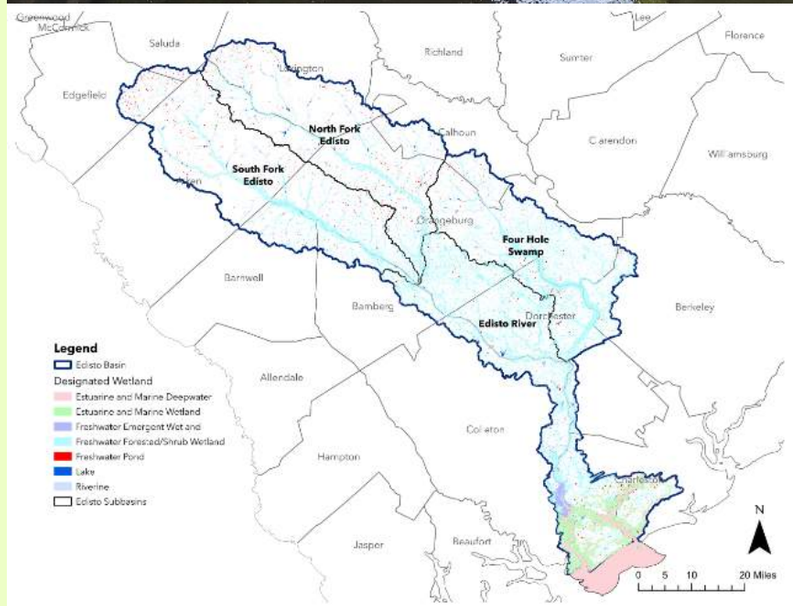


Source: Matthew Petkewich and Greg Cherry, USGS

Surface Water Key Findings

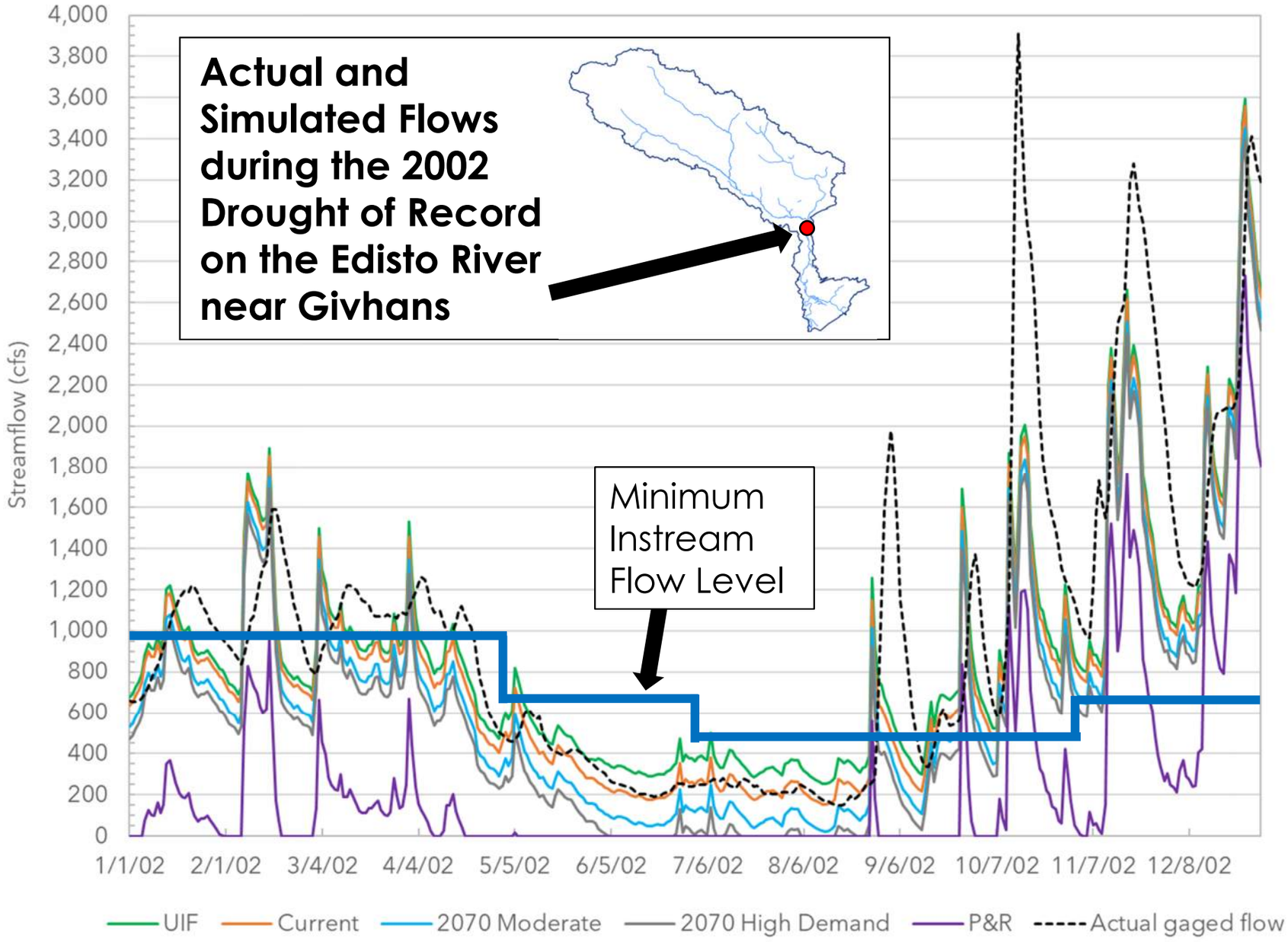
- Surface water resources of the Edisto River basin are generally sufficient to meet current and projected future needs.
- **If fully permitted and registered amounts were withdrawn, the basin would be unsustainably stressed with frequent shortages and more severe low flows.**
- Projected water shortages through 2070 in the agricultural sector are likely overestimated because the many(over 350) impoundments were not modeled.
- Projected public water supply shortages occurred in the High Demand Scenario for year 2070 under drought of record (2002) flows.
- Existing water suppliers' Drought Management Plans, if followed, eliminate projected shortages in 2070.

Source: Charleston Water System



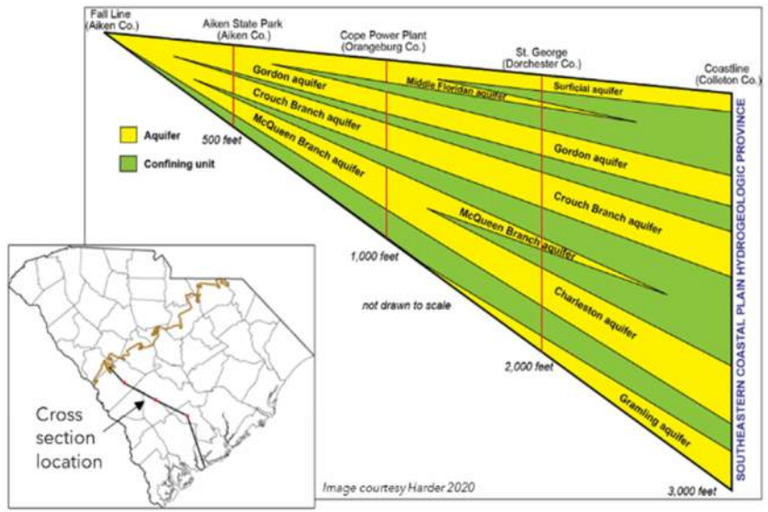
Surface Water Key Findings

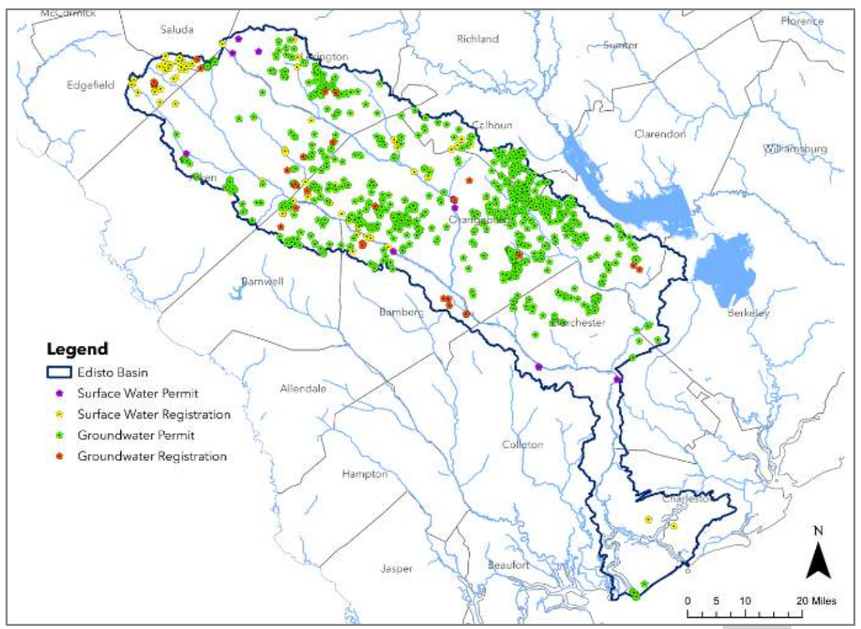
- **Even without any surface water use, flows in the Edisto River and other reaches can drop below minimum instream flows during periods of low precipitation and drought.**



Groundwater Water Key Findings

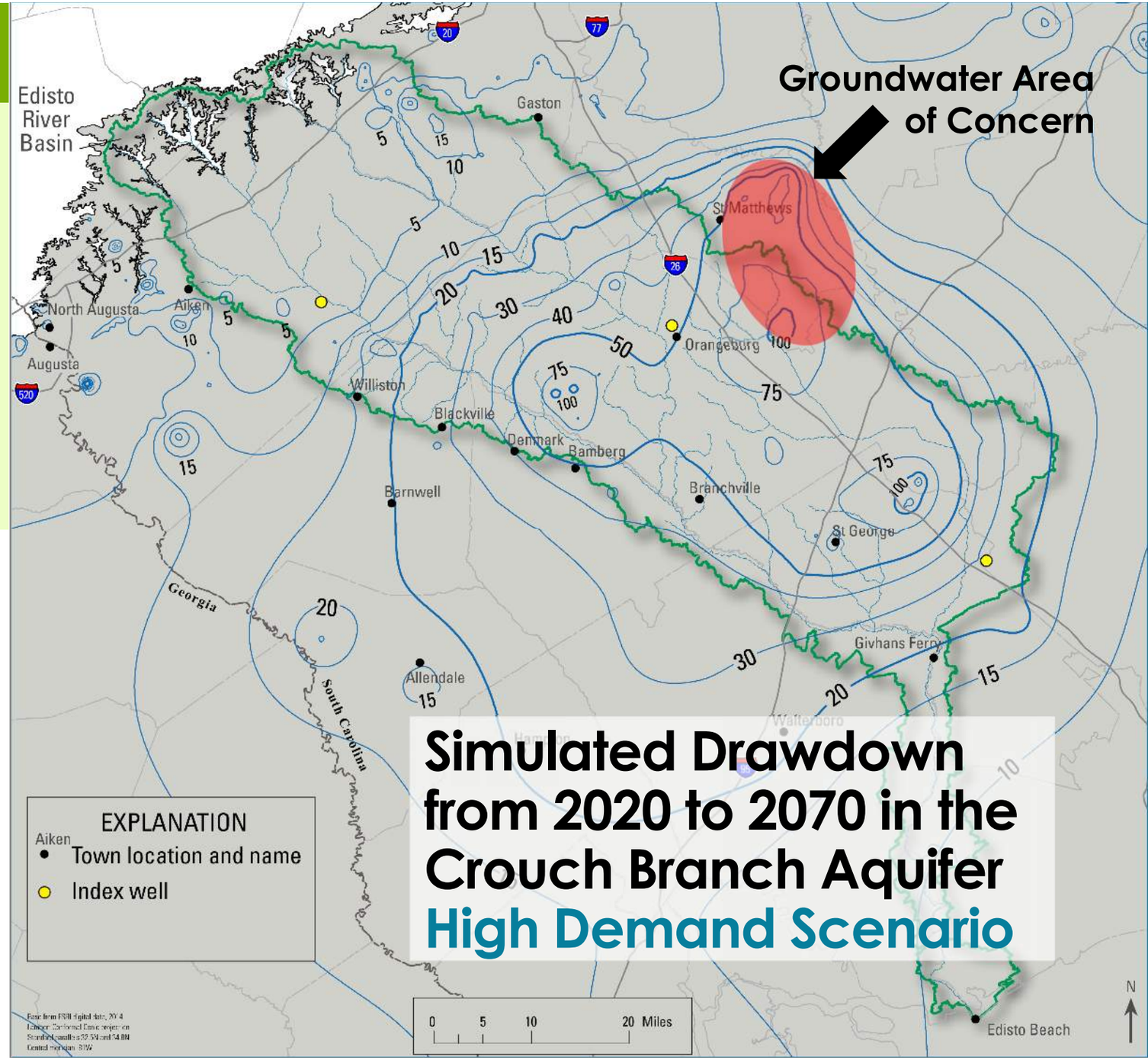
- Groundwater level declines simulated in all scenarios result in aquifer levels dropping below the top of the Crouch Branch aquifer and below the top of the McQueen Branch aquifer in certain locations
- At these locations, there are risks to the groundwater aquifers that will need to be managed, including 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 designated areas where modeling or monitoring show declines below the top of an aquifer as Groundwater Areas of Concern.





Key Finding

A Groundwater Area of Concern was identified in Calhoun County where water levels are predicted to drop below the top of the Crouch Branch aquifer

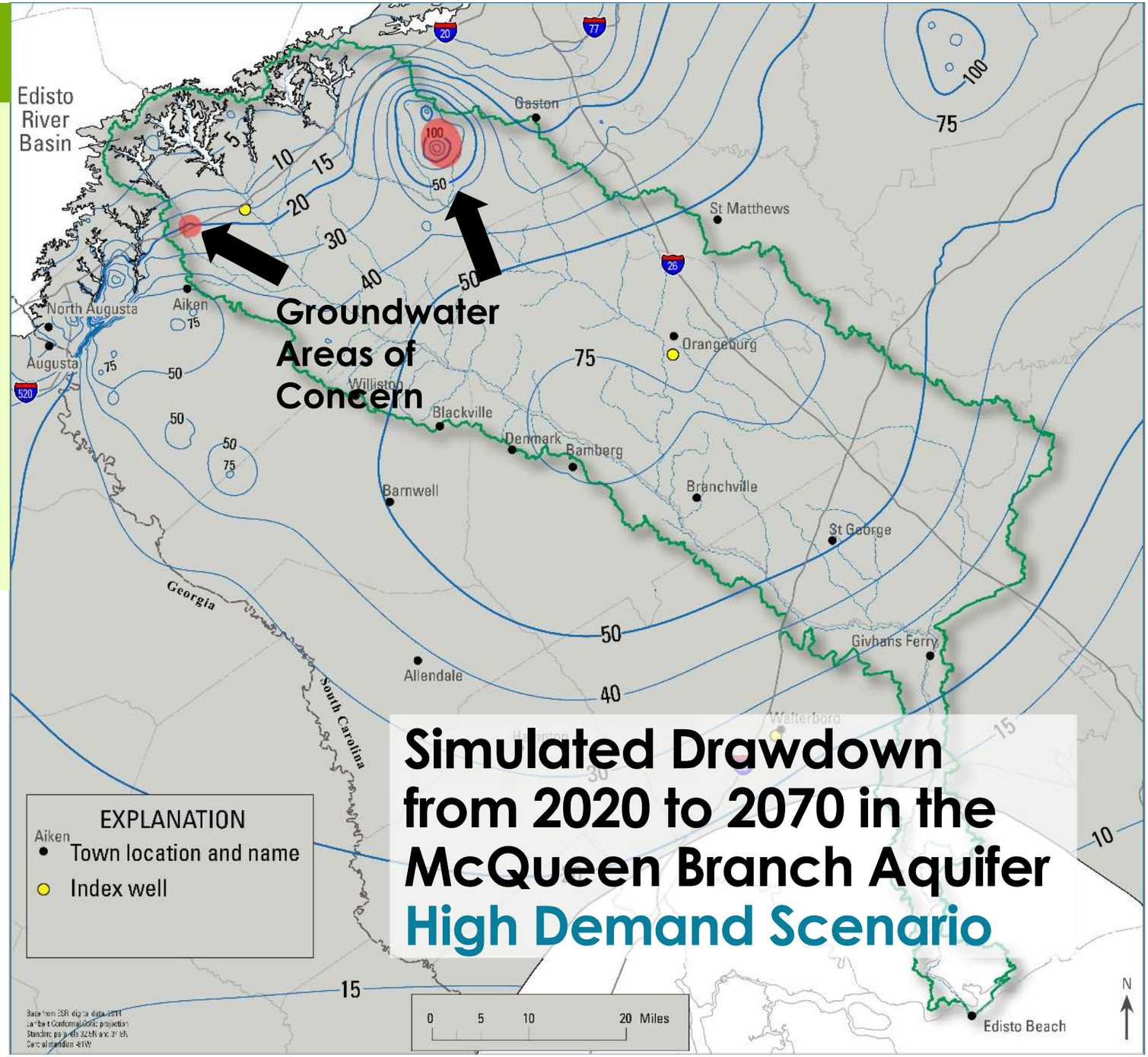


Provisional *– All data is considered provisional and subject to revision.*

Source: Matthew Petkewich and Greg Cherry, USGS

Key Finding

Groundwater Areas of Concern were identified in Lexington and Aiken Counties where water levels are predicted to drop below the top of the McQueen Branch aquifer

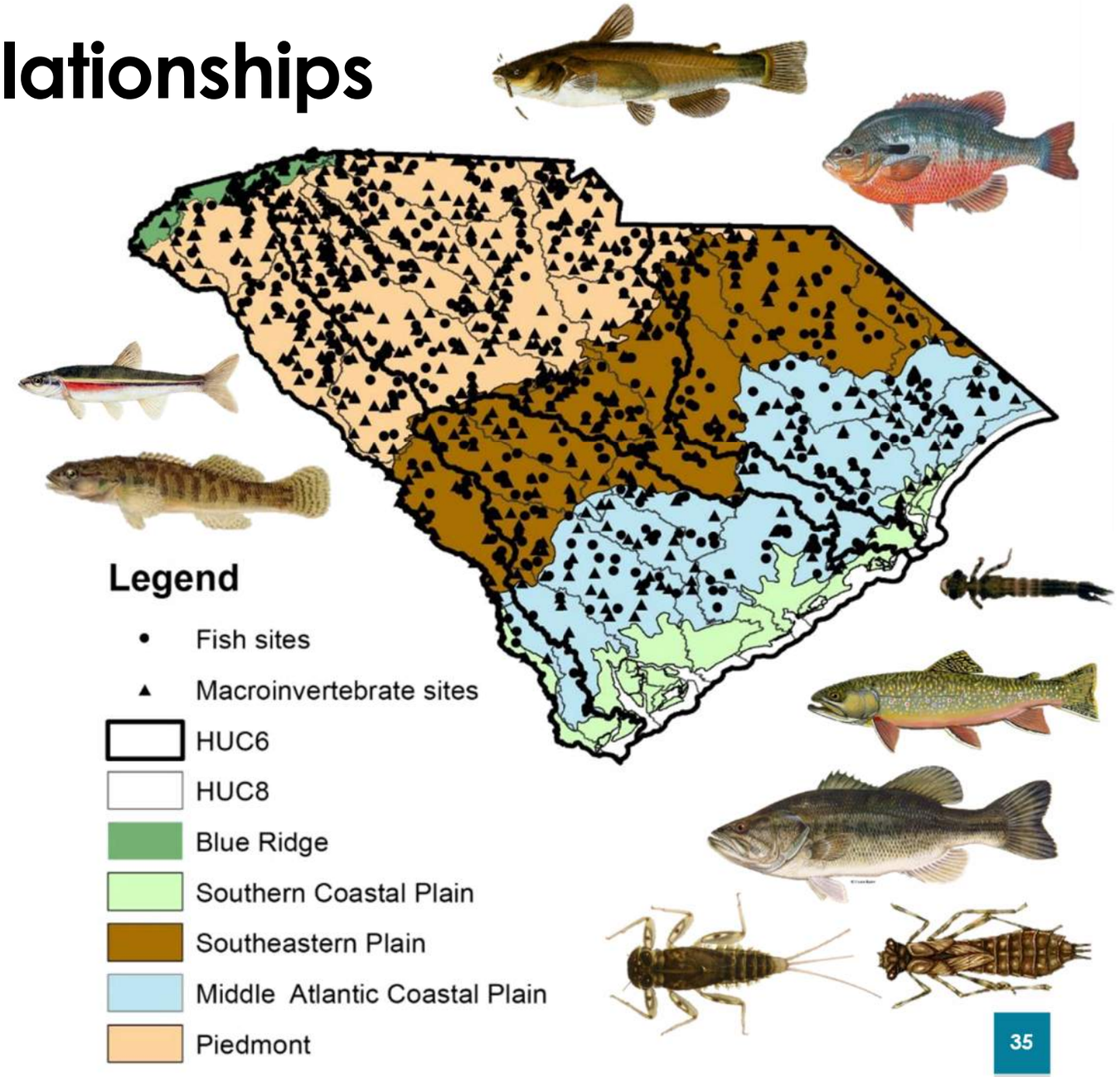


Provisional *– All data is considered provisional and subject to revision.*

Source: Matthew Petkewich and Greg Cherry, USGS

Streamflow-Ecology Relationships

Objective: Quantify relationships between key flow metrics and biotic response to better inform water flow standards throughout the state and serve as a tool supporting informed decision making in the river Basin planning process.



Streamflow-Ecology Relationships

Key Finding

Simulated flow regimes of the Moderate, High Demand, and Permitted and Registered Scenarios are likely to result in low ecological risk in primary and secondary tributaries of the Edisto River basin.

- At only a few locations were risks predicted to increase to the medium or high risk range, and only in the High Demand and Permitted and Registered Scenarios.
- The assessment was limited to hydrologic and 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.

Surface Water Management Strategies

Portfolio of Demand Side Strategies

Agricultural Strategies (Examples)

Water audits and nozzle retrofits
Irrigation equipment changes
Soil management and cover crops
Irrigation scheduling
Crop variety, type, and conversion

Municipal Strategies (Examples)

Conservation pricing structures
Leak detection and water loss control program
Toilet rebate program
Landscape irrigation program and codes
Time-of-day watering limit
Car wash recycling ordinances
Public education about water conservation
Residential water audits
Water efficiency standards for new construction
Reclaimed water programs

Surface Water Management Strategies

Supply Side Strategies

Conjunctive Use

- Switching from surface water use to groundwater use during times of low river and stream flow.

Small Impoundments

- Serve to reduce or eliminate agricultural water shortages during drought conditions.

Low Flow Management Strategy

The strategy serves to augment statewide and municipal drought management plans by triggering tiered withdrawal curtailment by the largest water users in the basin when Edisto River flow reaches certain low levels.

Incremental Percent Below 20% of Median Flow	Edisto River Flow Range (cfs) at Givhans Ferry		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%

Other RBC Recommendations

Technical and Program Recommendations

Example: SCDNR work with SCDHEC, USGS, and other partners to enhance monitoring capabilities in the identified Groundwater Areas of Concern.

Recommendations to Improve the River Basin Planning Process

Example: 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.

Other RBC Recommendations

Policy, legislative, and regulatory issues

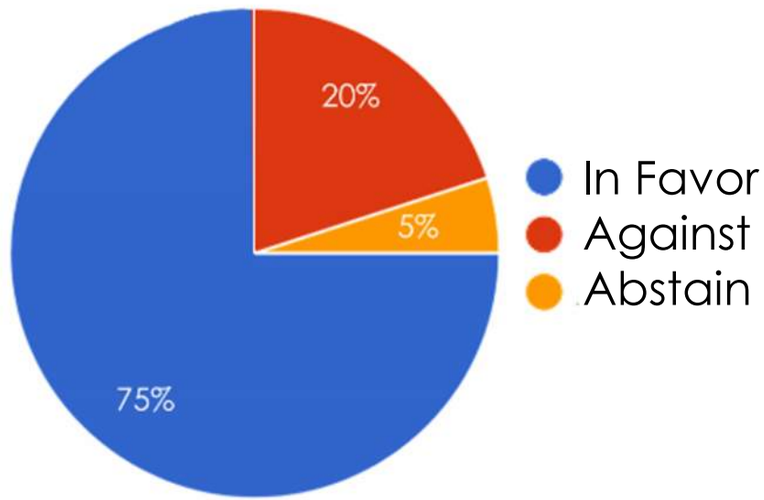
The Edisto RBC did not reach consensus on these topics but identified and discussed issues, developed proposals, and documented support or concerns with the proposals.

Example Proposal: The 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.

Support for: The median is a better statistical representation of flow on the river and may reduce overallocation.

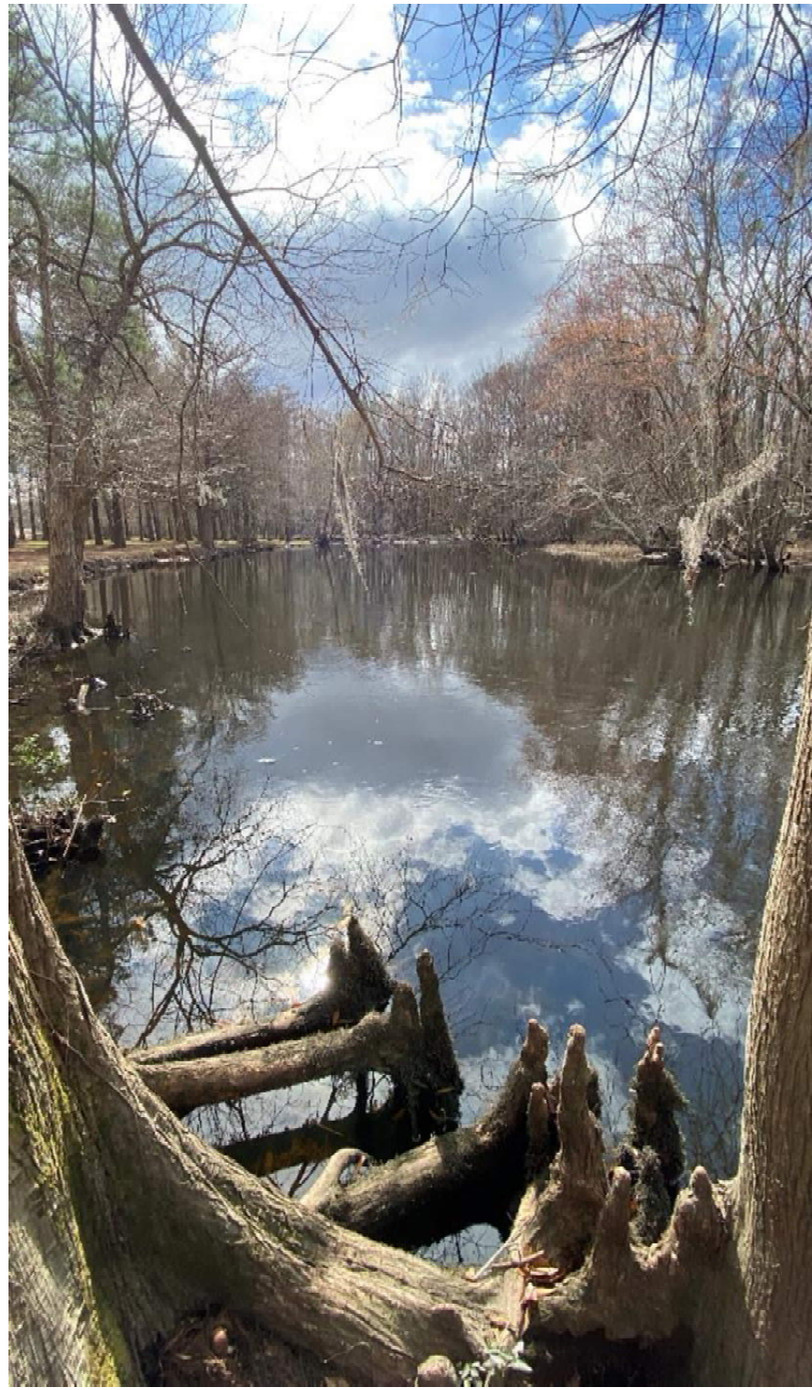
Reasons Against: Although flawed, existing regulations effectively protect the resource, and a switch may not be worth the confusion it could create.

RBC Voting Results



Identified Issues and Challenges

- Surface water resources of the basin are over-allocated based on existing permit and registration amounts. The registered and permitted withdrawals have effectively used up the safe yield of the basin and SCDHEC cannot grant any new surface water registrations.
- Future surface water withdrawers seeking new registrations in the basin will need to apply for a permit and be subject to permit fees and conditions.



Identified Issues and Challenges

- Because no new registrations can be granted and the full existing registered and permitted amounts are unlikely to ever be used, the existing permits and registrations effectively act as a conservation measure.
- Currently no users in the Edisto River basin are subject to Minimum Instream Flow requirements.

Implementation Plan

The RBC-developed implementation plan includes specific short-term (5-year) and long-term strategies and actions to address the following six objectives:

1. Reduce demand to conserve water resources
2. Conserve surface water during low-flow conditions
3. Augment sources of supply
4. Protect groundwater supplies and existing users
5. Improve technical understanding of water resource management issues
6. Effectively communicate RBC findings and recommendations

Public Comments and Q&A with the RBC

Submitting Comments on the Draft River Basin Plan

Submitting Comments of the Draft Plan

The Draft Edisto River Basin Plan is available at:

http://hydrology.dnr.sc.gov/edisto-basin-planning.html

Comments can be e-mailed to:

Comments must be received by: January __, 2023