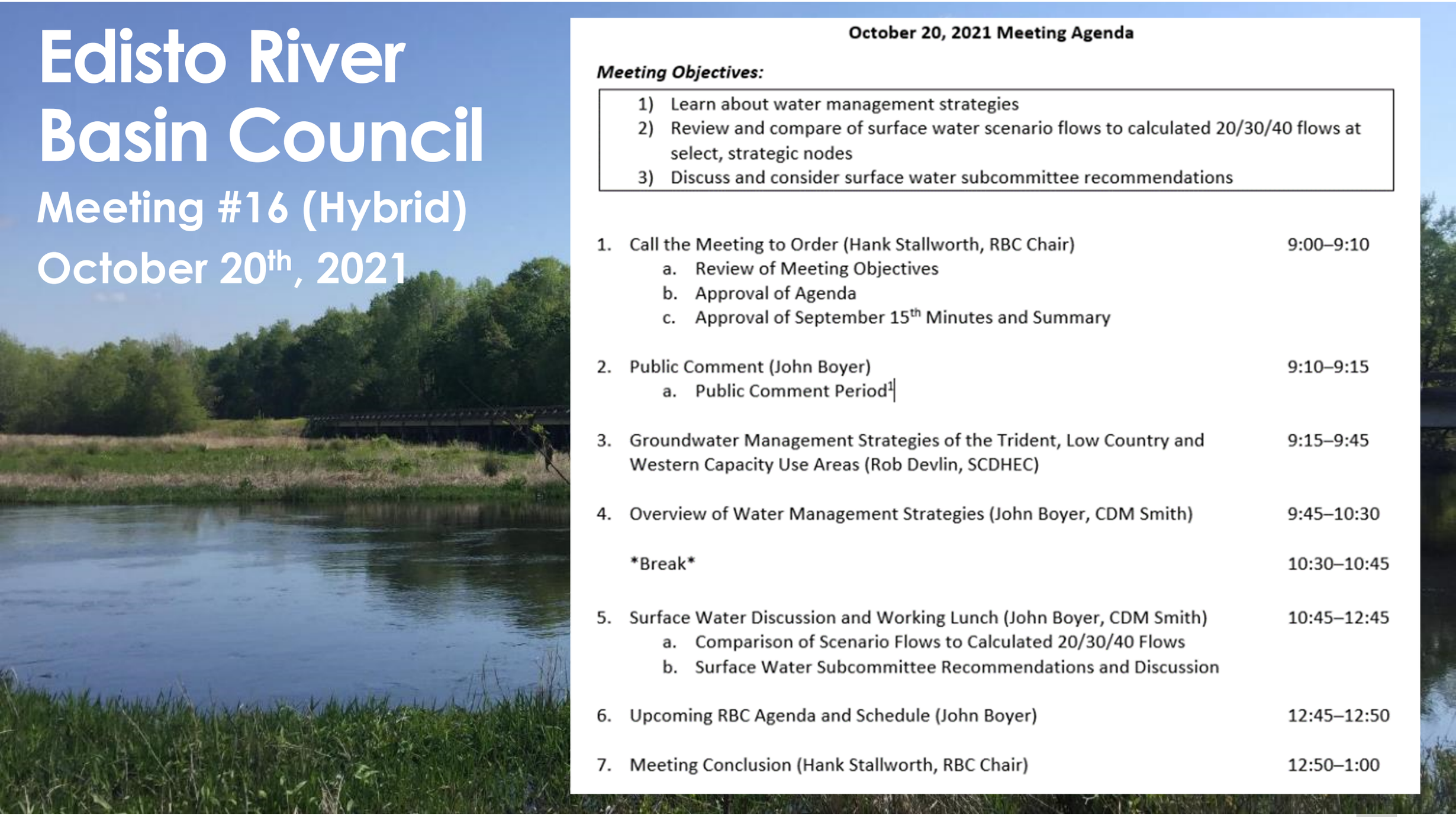
Edisto River Basin Council

Meeting #16 (Hybrid)

October 20th, 2021



October 20, 2021 Meeting Agenda

Meeting Objectives:

1) Learn about water management strategies
2) Review and compare of surface water scenario flows to calculated 20/30/40 flows at select, strategic nodes
3) Discuss and consider surface water subcommittee recommendations

1.	Call the Meeting to Order (Hank Stallworth, RBC Chair) a. Review of Meeting Objectives b. Approval of Agenda c. Approval of September 15th Minutes and Summary	9:00–9:10
2.	Public Comment (John Boyer) a. Public Comment Period[1]	9:10–9:15
3.	Groundwater Management Strategies of the Trident, Low Country and Western Capacity Use Areas (Rob Devlin, SCDHEC)	9:15–9:45
4.	Overview of Water Management Strategies (John Boyer, CDM Smith)	9:45–10:30
	Break	10:30–10:45
5.	Surface Water Discussion and Working Lunch (John Boyer, CDM Smith) a. Comparison of Scenario Flows to Calculated 20/30/40 Flows b. Surface Water Subcommittee Recommendations and Discussion	10:45–12:45
6.	Upcoming RBC Agenda and Schedule (John Boyer)	12:45–12:50
7.	Meeting Conclusion (Hank Stallworth, RBC Chair)	12:50–1:00

Overview of Water Management Strategies

John Boyer, CDM Smith

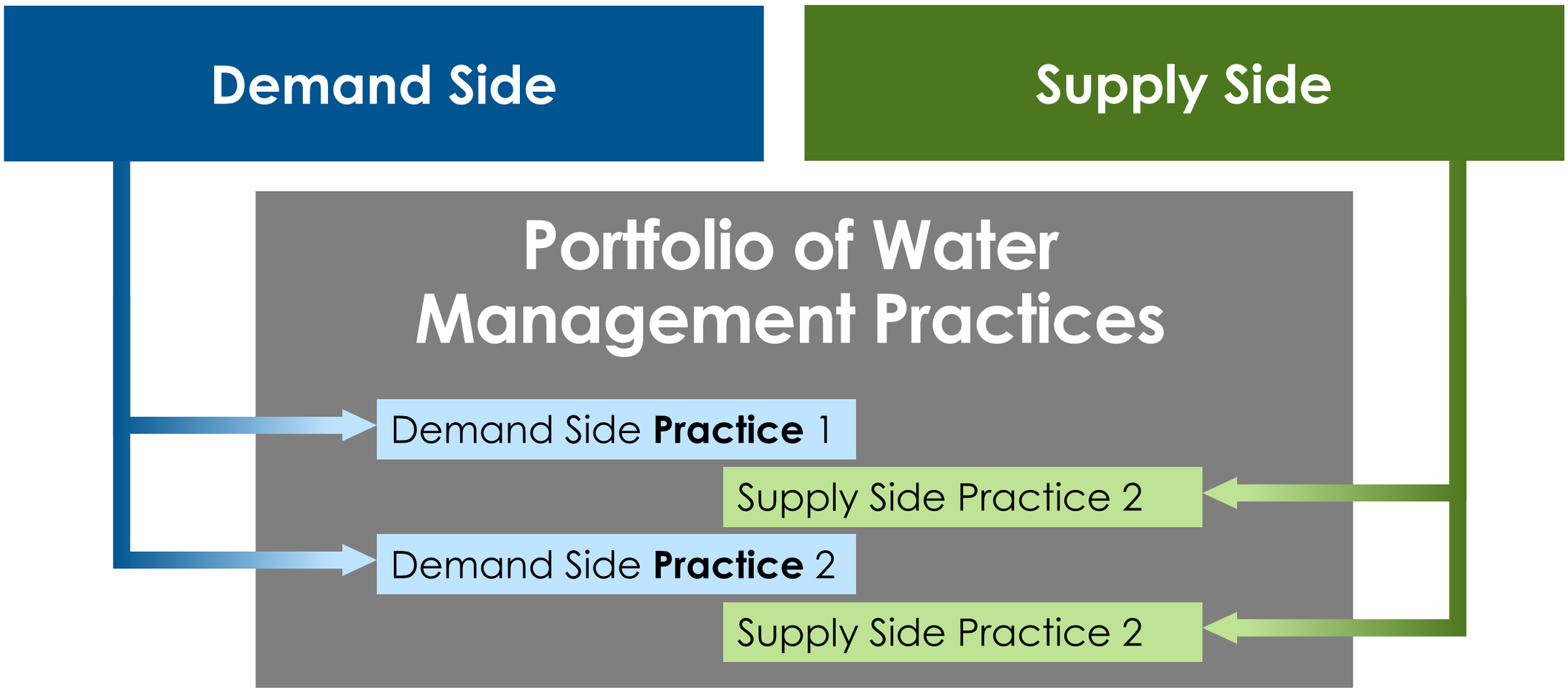
Outline

- Definitions
- Overview
- Supply and Demand Side Examples
- Opportunities in the Basin
- Evaluation Criteria
- Existing Strategies
- Drought Management Plans

Planning Framework Definitions

- **Surface Water Management Strategy** – a water management strategy proposed to eliminate a Surface Water Shortage, reduce a Surface Water Shortage, or generally increase Surface Water.
- **Groundwater Management Strategy** – a water management strategy proposed to address a Groundwater Area of Concern or Groundwater Shortage.

Basin-wide Water Management Strategy



Water Management Strategies

Demand Side Strategies	Example Practices
Municipal conservation	Water loss control programs Low flow fixtures, toilets and appliances Pricing structures (ex. increasing block rates) Xeriscaping
Ag/Irrigation conservation	Water audits and center pivot sprinkler retrofits Dammer dikers Cover cropping, conservation tillage, mulch Soil Moisture sensors/smart irrigation Crop selection Irrigation scheduling Drip/Trickle irrigation (for select crops)

Water Management Strategies

Demand Side Strategies	Example Practices
Industrial conservation	Water reuse and recycling Water efficient processes Water loss control Low flow fixtures, toilets and appliances
Thermoelectric conservation	Reclaimed water Switch to combined-cycle natural gas Energy saving appliances (which reduces thermoelectric generation needs)

Water Management Strategies

Supply Side Strategies	Example Practices
New or Increased Storage	New impoundments, ponds, reservoirs, tanks Dredging (pond deepening) Reservoir expansion (raising dam height) Aquifer storage and recovery
Water Reclamation	Water reuse systems (non-potable) Direct potable reuse Stormwater capture and treatment
Conjunctive Use	Using groundwater to augment surface water during low flow periods

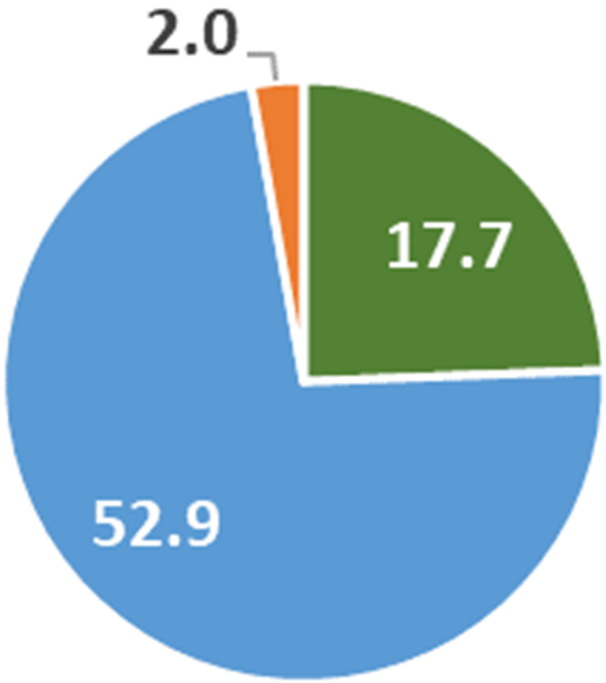
Water Management Strategies

Supply Side Strategies	Example Practices
Conveyance	Regional water systems Utility interconnections Interbasin transfers
Desalination	Treatment of brackish groundwater Desalination of seawater

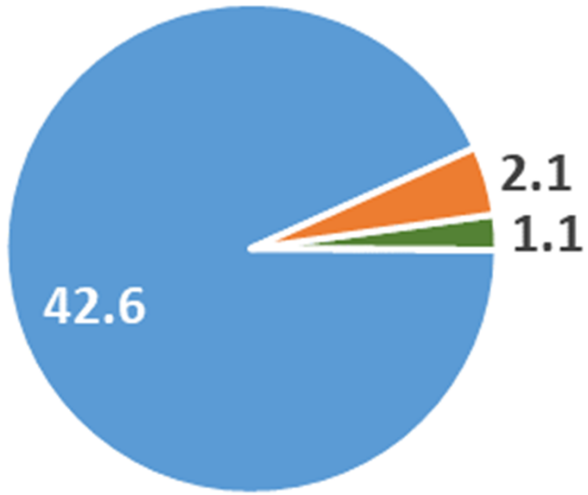
Where are the Opportunities in the Edisto Basin?

Surface Water Consumptive Use by Sector

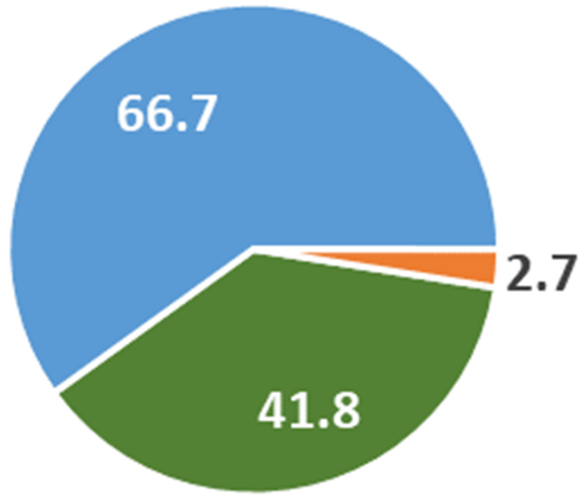
Current Use Scenario



Annual Average (MGD)



Winter (Dec-Feb) Average (MGD)



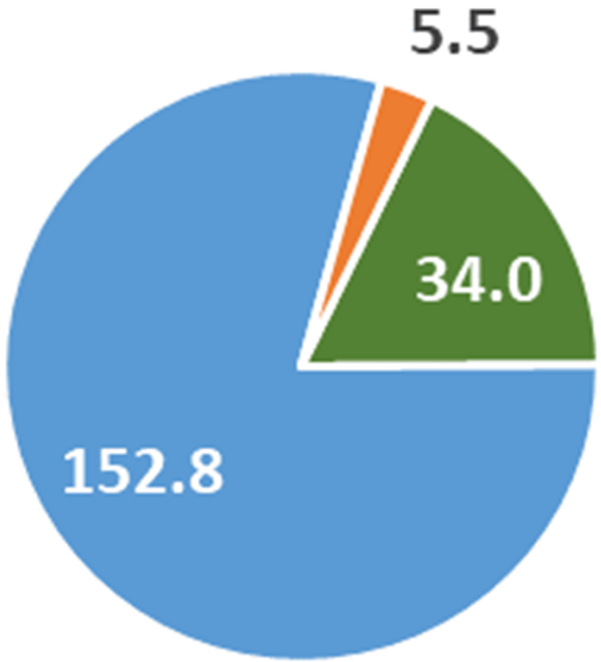
Summer (Jun-Aug) Average (MGD)

- Agriculture
- Municipal
- Thermoelectric

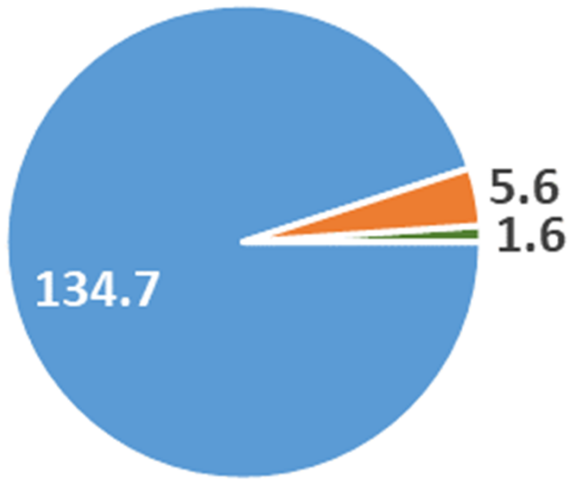
Where are the Opportunities in the Edisto Basin?

Surface Water Consumptive Use by Sector

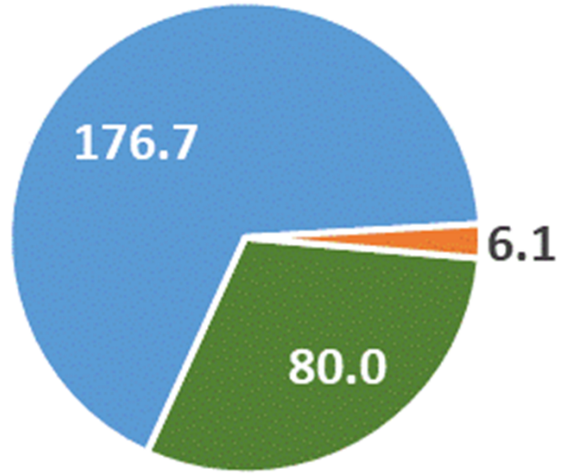
High Demand Scenario



Annual Average (MGD)



Winter (Dec-Feb)
Average (MGD)



Summer (Jun-Aug)
Average (MGD)

- Agriculture
- Municipal
- Thermoelectric

Criteria to Evaluate Water Management Strategies

- Effectiveness
  - Analyze Performance Measures (via modeling)
  - Cost/benefit incl. capital and annual costs ($/MGD)
- Reliability (especially during drought)
- Permitting/regulatory including potential interbasin impacts
- Environmental impacts
- Socioeconomic impacts
- Water quality impacts and considerations
- Constructability

Existing Water Management Strategies in the Edisto Basin

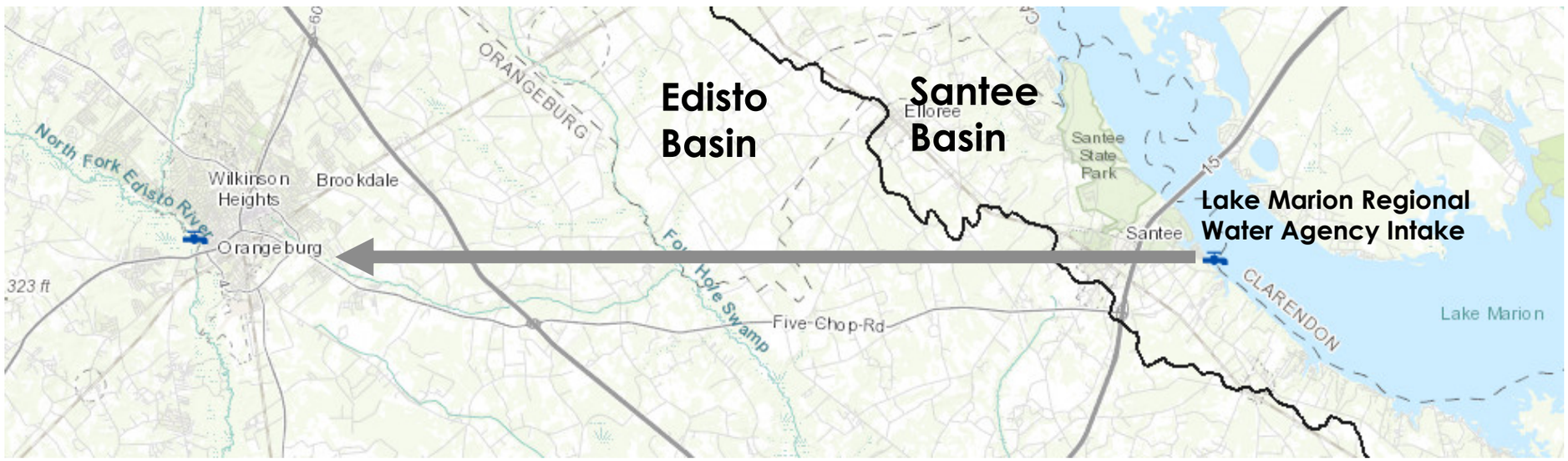
City of Aiken

- **Masons Branch Reservoir**
  - 1,254 acre-feet (340 mgal) storage
  - Releases only during extreme drought to augment flow in Shaw Creek, above the City's intake
  - Provides approximately 30-day supply during average use

Existing Water Management Strategies in the Edisto Basin

City of Orangeburg

- Two Aquifer Storage and Recover (ASR) wells
- Interconnection with Lake Marion Regional Water Syste



Existing Water Management Strategies in the Edisto Basin

Walther Farms

- **Supply side -** Installed groundwater well to provide up to 20% of peak demand (conjunctive use)
- **Demand side -** Water audit/sprinkler head retrofits, eliminate end spray guns, cover cropping, dammer dikers

Existing Water Management Strategies in the Edisto Basin

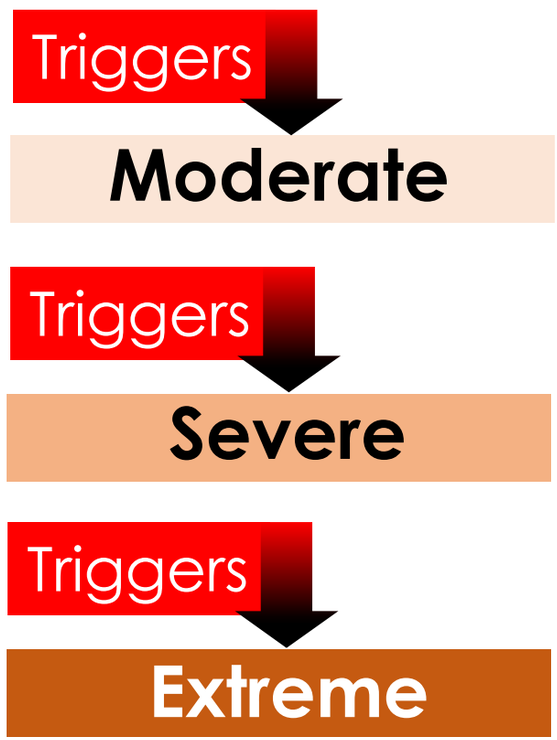
Dominion Energy Cope Station

- Moving from 100% groundwater to a combination of surface and groundwater by 2028
- Eventually will withdrawal ~90% from surface water and ~10% from groundwater when river conditions allow
- During low flow conditions, all water use at the station will be groundwater

Drought Management Plans

Edisto Basin Surface Water Users with Drought Plans

- Aiken
- Batesburg-Leesville
- Charleston Water System
- Orangeburg



Batesburg-Leesville – Drought Phase Triggers

Moderate Drought Phase

1. Town Pond Reservoir 4/5 full
2. Brodie Creek flow below 5.0 cfs
3. 60 days of raw water supply available
4. Average daily use greater than 1.3 mgd for 45 consecutive days
5. Local average rainfall less than 6 in for 60 days

Severe Drought Phase

1. Town Pond Reservoir 3/5 full
2. Brodie Creek flow below 3.0 cfs
3. 45 days of raw water supply available
4. Average daily use greater than 1.5 mgd for 30 consecutive days
5. Local average rainfall less than 2 in for 90 days

Extreme Drought Phase

1. Town Pond Reservoir 1/2 full
2. Brodie Creek flow below 1.5 cfs
3. 21 days of raw water supply available
4. Average daily use greater than 1.5 mgd for 30 consecutive days
5. Local average rainfall less than 1 in for 120 days

Batesburg-Leesville – Drought Ordinance

Moderate Drought Phase Goal of 15% Overall Reduction in Water Use

✓Request voluntary conservation measures

Severe Drought Phase Goal of 20% Overall Reduction in Water Use

✓ Request more stringent voluntary conservation measures enact some mandatory restrictions

Extreme Drought Phase Goal of 25% Overall Reduction in Water Use

✓ Enact additional mandatory restrictions, impose excessive use rate schedule and drought surcharge

Next Edisto RBC Meeting

Wed, November 17

Informational Topic

- Groundwater Scenario Results - Comparison and Discussion

RBC Discussion

- Effectiveness of Low Flow Strategy?
- Effectiveness of Existing Management Practices and/or Drought Management Plan Water Use Reduction Goals?
- Identification and Discussion of Other Possible Water Management Strategies for Evaluation