



Catawba-Wateree Water Management Group

INTEGRATED WATER RESOURCES PLAN

Education Webinar Series

This is a Microsoft Teams Webinar.

To help this meeting run as smoothly as possible, please consider the following:

- Participants will be muted and cameras will be off throughout the presentation.
- Please feel free to use the chat feature throughout the meeting, and to send all questions for our presenters through the Q&A feature.
- Questions will be answered during the Q&A portion of this meeting, starting with any questions we received through registration forms.



You may choose to disconnect from any VPN or third-party connection sources during the webinar to maintain connectivity and bandwidth.

Agenda

1. Introductions & Acknowledgments
2. CWWMG/Basin Overview
3. IWRP Overview & History
4. IWRP Findings & Recommendations
5. IWRP Implementation & Next Steps
6. Facilitated Q&A



Introductions



Jimmy Bagley, PE
CWWMG Chair
City of Rock Hill, SC



Jeff Lineberger, PE
CWWMG Vice Chair
Duke Energy Carolinas, LLC



Sara Yeh
CWWMG IWRP Support
HDR

Acknowledgement

This Integrated Water Resources Plan (IWRP) was developed by the Catawba-Wateree Water Management Group, representing 21 member organizations, using the **best available data and projections**. It reflects historical and current conditions along with reasonable forecasts to support informed planning. The document is **neutral and analytical**, presenting facts and possible scenarios without advocating for any particular outcome.

The IWRP includes **recommended actions to enhance water supply resiliency during drought and protect water quality within the Basin**. Supporting the IWRP does not limit any rights or options organizations may have in future regulatory proceedings.



About the Catawba-Wateree Water Management Group



CWWMG Mission

CWWMG's Mission is to collectively identify, fund, and implement projects that will extend the capacity of the Catawba-Wateree River to effectively serve the community, while protecting and enhancing the ecological health of the Basin.



Our Vision: CWWMG envisions a future with a sustainable water source achieved through proactive planning, cutting edge research, and water shortage preparedness.



CWWMG Vision

Our Board



Chair
Jimmy Bagley, PE
City of Rock Hill, SC



Vice Chair
Jeff Lineberger, PE
Duke Energy Carolinas, LLC



Secretary/Treasurer
Jeff Church, Ed.D
City of Lenoir, NC



NC At-Large Director
David Cox
City of Hickory, NC



SC At-Large Director
Brad Bucy, PE
Lancaster County Water
& Sewer District, SC

Advisory Committee



Environment
Vicki Taylor (*Chair*)



Academic/Research
Calvin Sawyer, PhD



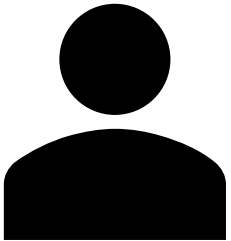
Residential Landowner
Shirley Greene



**Economic
Development**
Robert Long, CECd



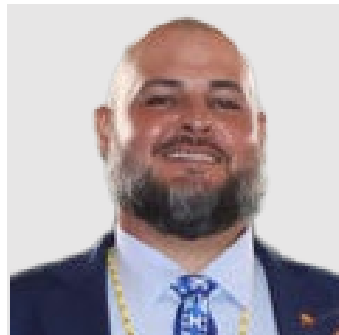
**Regulatory/
State Government**
Ryan Carter



Industrial/Business
Vacant



Recreation
Greg Nance



Discretionary Seat
Connie Wade



Local Government
Eleanor Mixon



Agricultural/Forestry
Mitch Peele



Agricultural/Forestry
Keith Larick

Our Members

Eligible Organizations

Mainstem Members

Duke Energy and water utilities with intakes on lakes/river

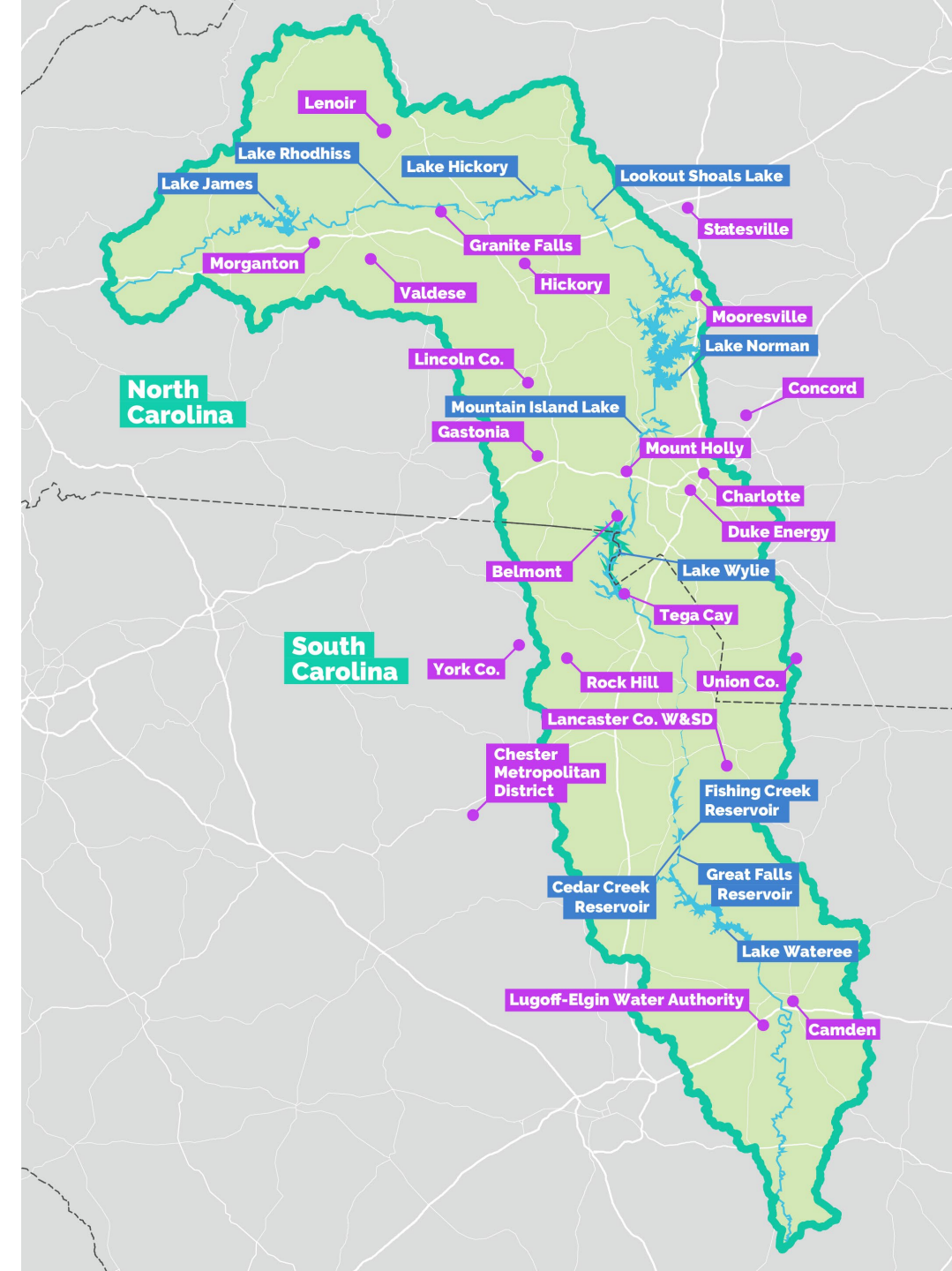
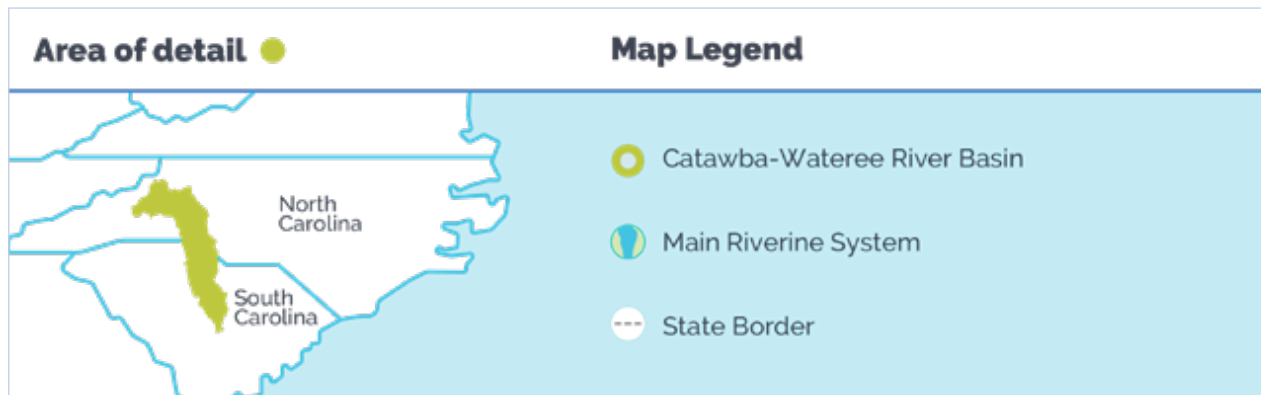
Utility Members

Water utilities serving customers within the Basin, or use Basin water to serve customers in other Basins

Associate Members

Commercial entities that own a water intake within the Basin

CWWMG is not a political or regulatory body; it is a non-profit of users and dependents on the Catawba-Wateree Basin



We envision a future with a sustainable water source achieved through proactive planning, cutting edge research, and water shortage preparedness.



**Integrated Water
Resources Plan**



**Research and
Technical**



**Education and
Awareness**

About the Catawba-Wateree Basin

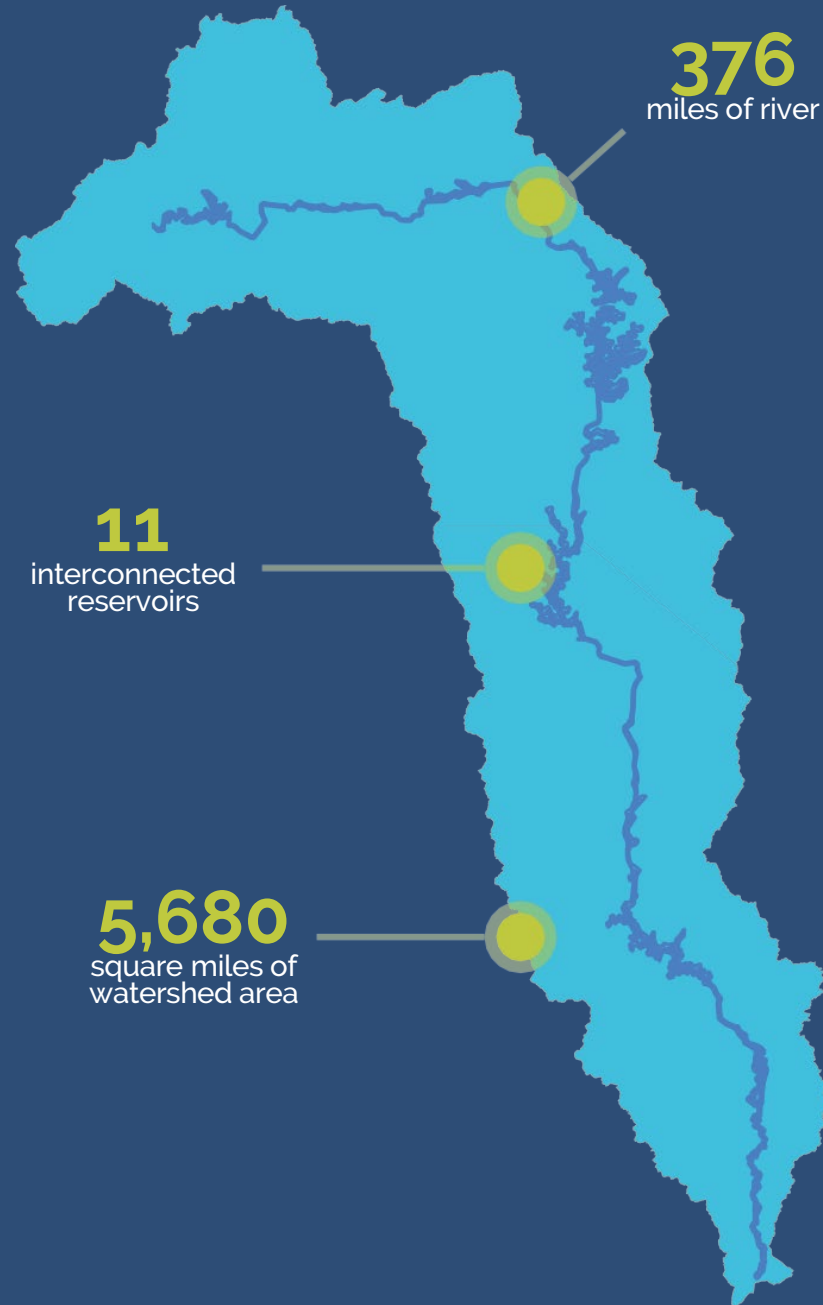
Our Basin

The Catawba-Wataeree River Basin is crucial, providing water for about two million people and generating enough energy to power over four million homes. It is also a biodiverse environment, offering essential habitats for numerous species of animals and plants, as well as recreational amenities for residents and visitors.

About the River

Drainage: All land areas inside the Basin boundary drain to the river.

Size: The Basin is relatively narrow (30 miles wide) and small, the 6th largest of 17 Basins in NC and the smallest of 8 in SC.



Hardest working river in America?

Dozens of
Public Water
Suppliers

12 Hydropower
Stations

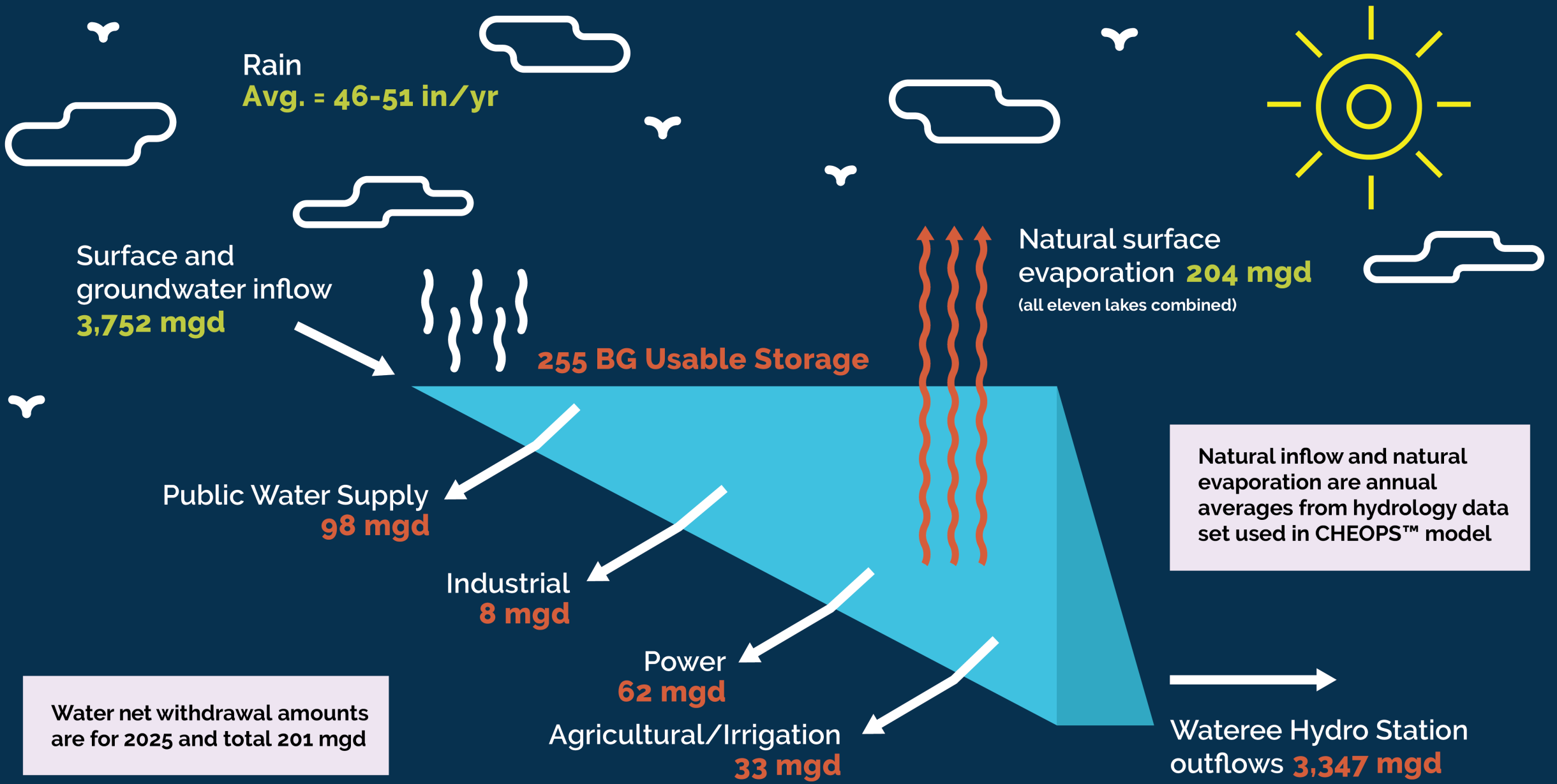
Nuclear &
fossil power
stations

Waste
Assimilation

Agriculture

Recreation

Environment



* mgd = million gallons per day; BG = Billion Gallons.

The River Basin is Changing

The Catawba-Wateree Basin's needs are not static. They are growing and evolving — right now.



Continued population and economic growth

(1.2% AGR for net water demand)



Greater climate variability, including extreme rainfall and dry periods

(Helene, then 17 of 22 months below normal rainfall)



Significant Interbasin Transfers

(28 MGD net now, 69 MGD net by 2075)



Development pressures that impact watershed health and water quality

Examples Include:

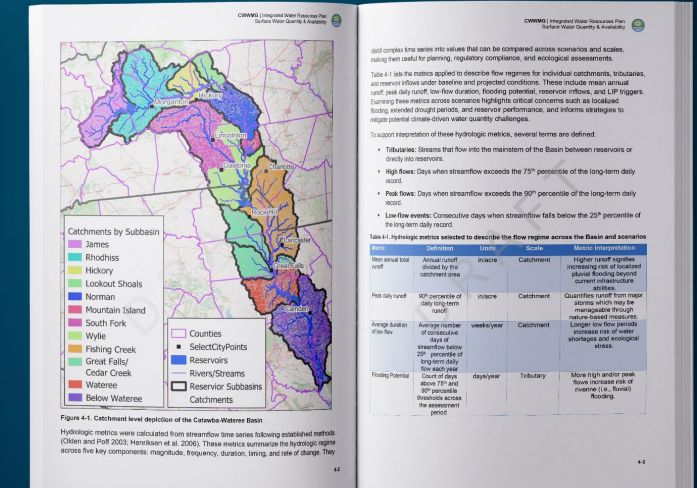
- Major transportation projects underway
- Expanded public recreation access from the top to bottom of the Basin
- New energy generation being developed and more planned
- Modernization of critical dam infrastructure
- Major wastewater investments progressing, including Charlotte Water's Stowe facility.

Integrated Water Resources Plan

Our Purpose

The Integrated Water Resources Plan (IWRP) is a navigation chart for effective future management of the shared water resources of our Basin.

It is intended to identify **water quantity and quality** issues and concerns, evaluate potential strategies to solve these issues, and implement practical solutions coordinated on a basin-wide level.





**INTEGRATED WATER
RESOURCES PLAN**
Practical Solutions for a Sustainable Future

01

January - December 2021

Basis of Planning

02

January - December 2022

**Model Updates &
Stakeholder
Communications**

03

January - December 2023

**Evaluations,
Recommendations &
Communications**

04

January - December 2024

**Final
Recommendations**

05

January 2025 – December 2025

**IWRP Production &
Rollout**

Technical team of experts from:

- HDR Engineering
- RTI International
- Catawba-Wateree Initiative
- The Water Center at the University of Pennsylvania

State-approved models that evaluate:

- Hydropower operations and power generation.
- Past and current water supply planning.
- A comprehensive economic study and evaluations.
- Water quality impacts and trends.

Two Decades of Regional Water Supply Planning

2006

Water Supply Study & Safe Yield Study

Identified the maximum capacity of the Catawba River Basin for water supply could be reached by 2048



2014/15

Water Supply Master Plan

Recommended strategies to extend safe yield to 2100



2025

Integrated Water Resources Plan

Final Draft developed Dec 2025
Added water quality evaluations

IWRP Guided by Stakeholder Advisory Team Input

NC Conservation Fund

**SC Department of Parks,
Recreation & Tourism**

**NC Division of Parks
and Recreation**

Gallo

(SC) Central Midlands COG

Lake Wylie Marine Commission

**Regional Stormwater
Partnership of the Carolinas**

**Lake Norman
Marine Commission**

**NC Wildlife
Resources Commission**

Catawba Riverkeeper

Catawba Nation

(SC) Santee Lynches COG

**(NC) Western Piedmont Regional
COG**

Dominion Resources

**South Carolina Department of
Environmental Services**

**(SC) Soil & Water Conservation
District**

**North Carolina Department of
Environmental Quality, Division of
Water Resources**



So, What did we learn from the IWRP?

The IWRP determined that the total water storage in the reservoir system is sufficient to meet water demands beyond 2100. **However, two key challenges remain:**



Reliable Access: Water is not always available where and when it is needed, particularly during drought conditions.

Limitations in water supply accessibility due to some raw water intake depths and current Low Inflow Protocol (LIP) and drought management strategies have been identified. The IWRP provides recommended potential strategies to address these challenges.

380 billion gallons below Critical Reservoir Elevations

Compiling North & South Carolina Current Transfers

Alexander County	Belmont	Bessemer City	Blowing Rock	Burke Co	Caldwell Co (North)	Caldwell Co (Southeast)
Cherryville	Conover	Cramerton	Delta Apparel, Inc.	Energy United	Gastonia	Harrisburg
Hickory	High Shoals	Icard Township W/C	Kings Mountain	Lenoir	Lincoln County	Lincolnton
Longview	Lowell	Maiden	McAdenville	Mount Holly	Newton	Ranlo
Stanley	Troutman	Valdese	Wingate	Winnsboro	York	Charlotte Water
Concord & Kannapolis	Mooresville	Union County	Statesville	Chester	Lancaster County	

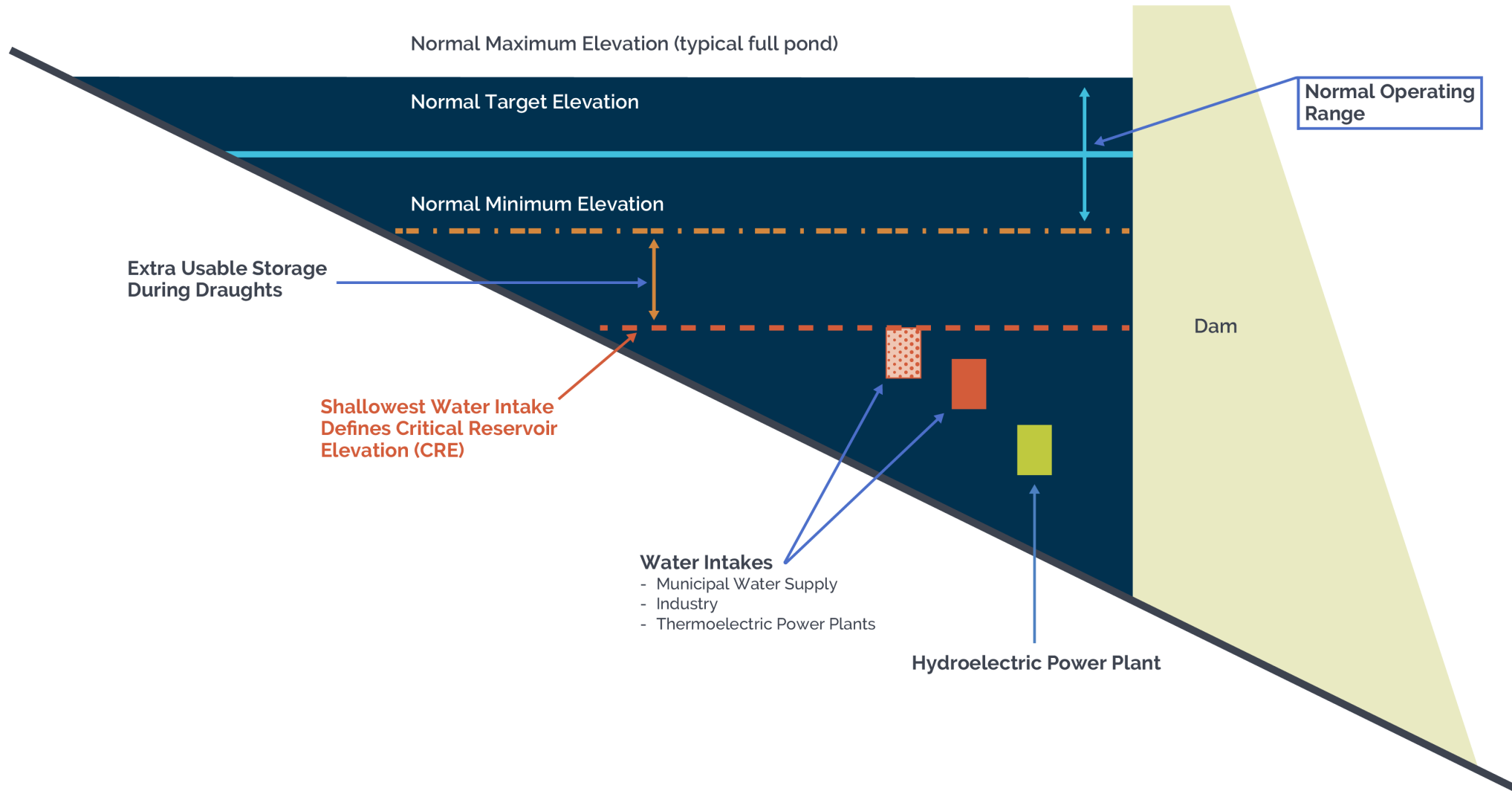
LEGEND

Catawba → Yadkin / Pee Dee

Catawba → Broad

Catawba ← → South Fork of Catawba

Protect and Enhance Usable Storage in Lakes



Modeling the Drought of Record (2006-09)

Assumes water users follow projected demand growth until sub-basin falls below critical elevation for 3 consecutive days.

LEGEND

0 Days Below Critical
Some Days Below Critical
3 Consecutive days & 0.25+ ft below Critical
3 Consecutive days & 0.5+ ft below Critical
3 Consecutive days & 1+ ft below Critical

	2025	2035	2045	2055	2065	2075	2085	2095	2105	2115
<i>James</i>										
<i>Rhodhiss</i>										
<i>Hickory</i>										
<i>Lookout Shoals</i>										
<i>Norman</i>										
<i>Mtn. Island</i>										
<i>Wylie</i>										
<i>Fishing Creek</i>										
<i>Great Falls</i>										
<i>Cedar Creek</i>										
<i>Wateree</i>										

So, what did we learn from the IWRP?



Water Quality: Water quality pressures are increasing.

Sedimentation is reducing storage capacity, nutrients and runoff are affecting source water, and treatment complexities and costs are increasing. The IWRP identifies recommended potential strategies and priority locations to address these challenges.

148 million gallons per year Displaced by Sediment

So, what did we learn from the IWRP?

Collaboration

- 💧 Focusing together on high priorities will have the greatest positive impact
- 💧 Policy/regulatory changes and more \$\$\$ will be required
- 💧 We need to think and act across the River Basin (beyond political boundaries)



RECOMMENDATIONS

A. Policy, Legislative & Regulatory

The IWRP identifies opportunities to improve how policies and regulations support basin-wide water management. Better policy alignment allows the region to act as one system, rather than as disconnected jurisdictions.

B. Planning & Coordination

The IWRP emphasizes stronger integration between land use planning, conservation, and water supply management. Growth is occurring throughout the Basin, and without coordination, development can negatively impact both water availability and water quality.

C. Technical & Program Actions

The IWRP includes a range of technical and operational improvements designed to increase efficiency and improve overall system performance. These recommendations prioritize getting more value out of the existing system before expanding infrastructure.

D. Drought Planning & Response

Drought remains one of the most significant risks to water supply reliability in the Basin. The IWRP builds on the region's existing Low Inflow Protocol (LIP) to strengthen how drought is managed.

RECOMMENDATIONS

A. Policy, Legislative, & Regulatory

- An all-hands-on-deck, same-page approach to riparian buffers across the Basin.
- Revise Interbasin transfer (IBT) regulations to remove unintended barriers caused by subbasin delineations, enabling more flexible and practical water management within the same river basin.
- Designate a leadership-level champion within both NCDEQ and SCDES accountable for SC v. NC settlement agreement compliance.



B. Planning & Coordination

- Establish a clearer, stronger system to evaluate whether source water protection strategies are actually working.
- Coordinate land conservation and water supply protection at the subbasin level — growth and protection cannot operate in silos.
- Elevate conservation as a shared regional priority, not just a communications effort.



C. Technical & Program Actions

- Build a coordinated, Basin-wide monitoring system so decisions are based on shared, reliable data.
- Use stronger science to guide buffer and protection policies.
- Improve system efficiency before expanding infrastructure — reduce water loss, optimize plants, and expand reuse.
- Plan for industrial and economic growth with eyes wide open to long-term water demand.
- Update reservoir and storage data so planning reflects reality.
- Tailor strategies to the unique needs and pressures of each subbasin.



D. Drought Planning & Response

- Strengthen and act earlier under the Low Inflow Protocol (LIP) when drought conditions begin.
- Ensure all significant water users participate in LIP-driven drought response.
- Improve coordination across utilities and states during low-flow conditions.
- Update contingency plans and conduct exercises before drought conditions escalate.
- Prepare intake infrastructure for lower water levels.
- Prioritize drought-related investments based on risk and long-term resilience, not reaction.



From Plan to Action

Moving Our Basin Forward

The Catawba-Wateree Basin has a long-standing record of collaboration.

- The IWRP builds on two decades of proactive and collaborative water resources planning
- Basin-wide planning approaches help us avoid crisis-driven decisions and enable more efficient, coordinated investments
- **We all play a role** and have a shared responsibility to carry forward IWRP recommendations through planning, investments, and programs



Our Ask

For all Stakeholders:

Partners, local governments, agencies, businesses, and community organizations, are asked to:

- Support the goals and recommendations of the IWRP through letters of support, funding, and public adoption
- Incorporate IWRP principles into planning, policy, and investment decisions
- Partner in implementation, particularly for water quality protection and watershed health

Why Collective Support Matters:

Our basin is an interconnected system, and no single entity can manage this system alone.

- Water supply reliability depends on coordinated planning and operations
- Water quality depends on land use and conservation decisions across the Basin
- Long-term resilience depends on shared investment and aligned priorities



Access the Final IWRP and Other Resources

Our website houses the Final IWRP and other resources you may need to help turn IWRP research and recommendations into real projects across the Basin.

**[catawbawatereewmg.org/our-work/
water-resources-plan](https://catawbawatereewmg.org/our-work/water-resources-plan)**



Download a Copy of the Final IWRP



Access the Fact Sheet, Executive Summary, and more related documents



Read more about the history and collaborative effort of the IWRP



Soon: Use the IWRP Interactive Map Viewer to view conditions in specific Basin areas



Thank You