

Cape Fear Public Utility Authority Source Water Protection Plan

Summer 2023 Meeting

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Introduction

- ▶ CFPUA's Environmental Management and Sustainability Department (EMSD)
 - ▶ **Beth Eckert**, Deputy Director of Environmental Management and Sustainability
 - ▶ **Kat Pohlman**, Assistant Director of Environmental Management and Sustainability
 - ▶ **Krysden Burden**, Environmental Management and Regulatory Specialist
 - ▶ **Erin Tremblay**, Public and Environmental Policy Specialist
 - ▶ **Tara Arnette**, Management Systems and Compliance Auditor
 - ▶ **Makeba Robinson**, Compliance Coordinator
 - ▶ **Holden Shepard**, Security and Emergency Manager
 - ▶ **Sarah Corley**, Summer 2023 EMSD Intern

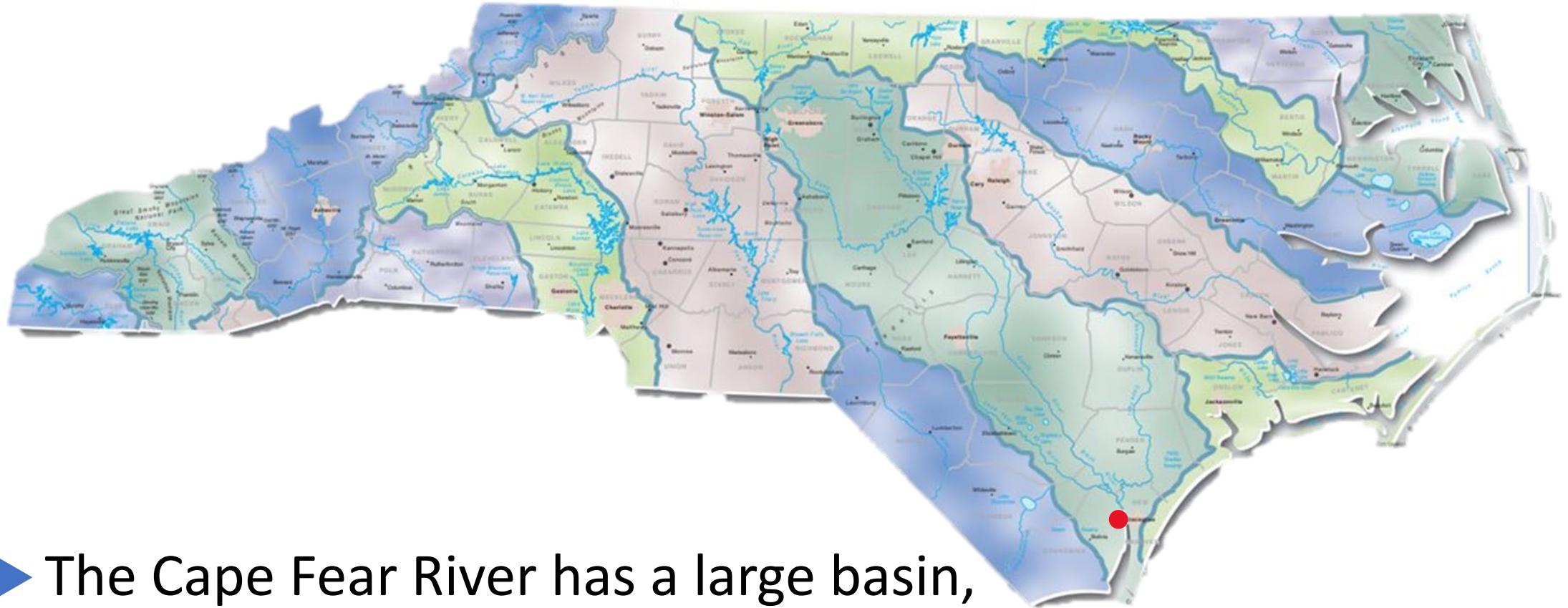




Overview

- ▶ Source Water Protection Plan Whys
 - ▶ History of CFPUA's Source Water Protection Plan
 - ▶ Goals of the Source Water Protection Plan
 - ▶ ICWater Software
 - ▶ Closing Remarks
 - ▶ Question and Answer
- 

Creating a Shared Point of Pride



- ▶ The Cape Fear River has a large basin, and CFPWA's source water is close to the end

Regulatory vs. Non-Regulatory Source Water Plans

Risk and Resiliency Plan

- ▶ Identifies potential contaminant sources (PCS) 43 miles upstream of L&D1
- ▶ Measures the risk of each PCS based on a rubric
- ▶ Focuses on emergency response

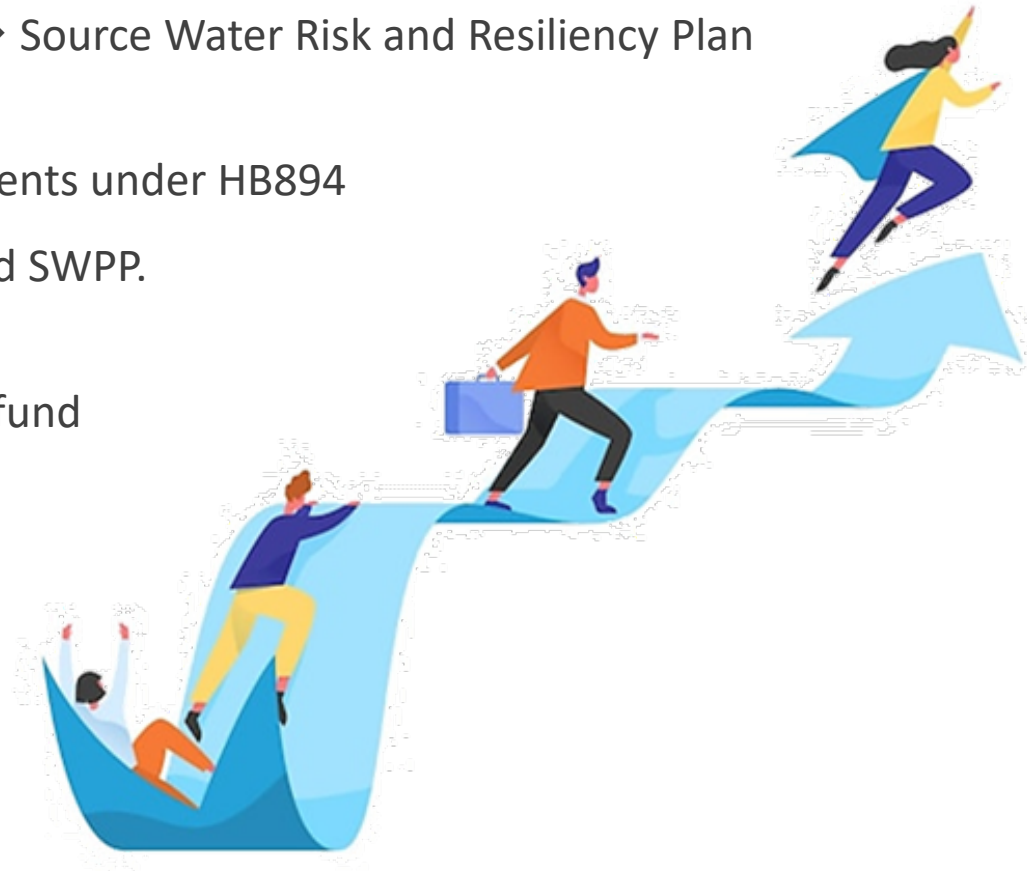
Protection Plan

- ▶ Develops a plan with goals and strategies to mitigate PCSs in SWRRP
- ▶ Requires community input and involvement
- ▶ Is a living document with ongoing feedback



History

- ▶ **2014:** HB894, “An Act to Improve Source Water Protection Planning” → Source Water Protection Plan
- ▶ **2018:** America’s Water Infrastructure Act → Source Water Risk and Resiliency Plan
- ▶ A complete SWRRP satisfied legal requirements under HB894 but did not equate to an NCDEQ-approved SWPP.
- ▶ **2021:** Staff applied for state revolving loan fund
 - ▶ Requires NCDEQ-approved SWPP
- ▶ **2023:** NCDEQ approves the SWPP



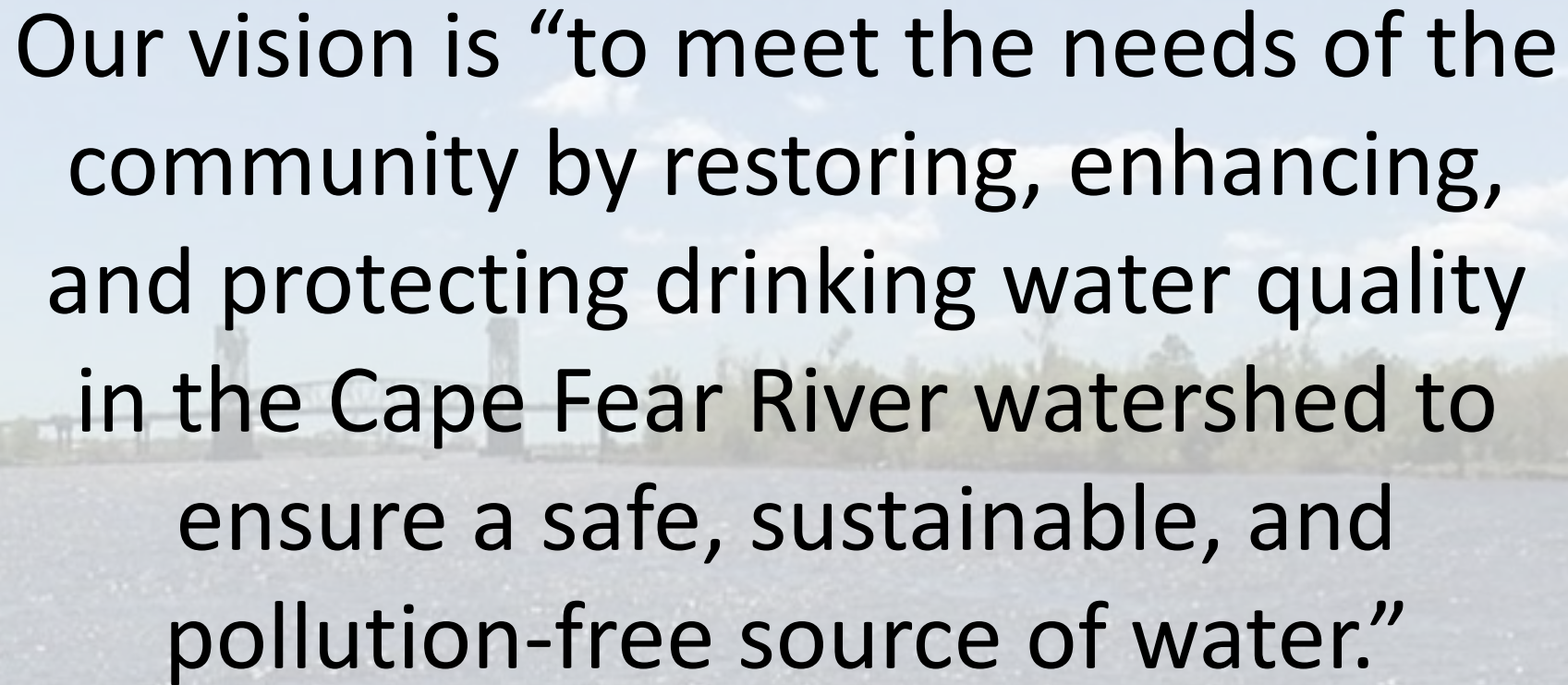
SWPP Team

- ▶ Cape Fear River Watch
- ▶ Heal Our Waterways
- ▶ Cape Fear River Assembly
- ▶ Cape Fear River Partnership
- ▶ Plastic Ocean Project
- ▶ Feast Down East
- ▶ Wilmington Compost Company
- ▶ NC Department of Environmental Quality
- ▶ Lower Cape Fear Water and Sewer Authority
- ▶ New Hanover County
- ▶ City of Wilmington
- ▶ Pender County
- ▶ Brunswick County
- ▶ Fayetteville Public Works Commission
- ▶ UNCW
- ▶ NCSU
- ▶ Duke University
- ▶ And Growing!





Vision Statement



Our vision is “to meet the needs of the community by restoring, enhancing, and protecting drinking water quality in the Cape Fear River watershed to ensure a safe, sustainable, and pollution-free source of water.”

CFPUA's Role

- ▶ Where does CFPUA fit into the work already being completed?
 - ▶ Do not want to repeat/copy other organizations
 - ▶ Check out the display board and help us fill in the gaps
- ▶ What gaps and/or niches can we fill?
 - ▶ How do we find the gaps?
- ▶ What will we do when we find a gap(s)?





Action Teams

Research

Issues, Gaps, and
Needs Identifier

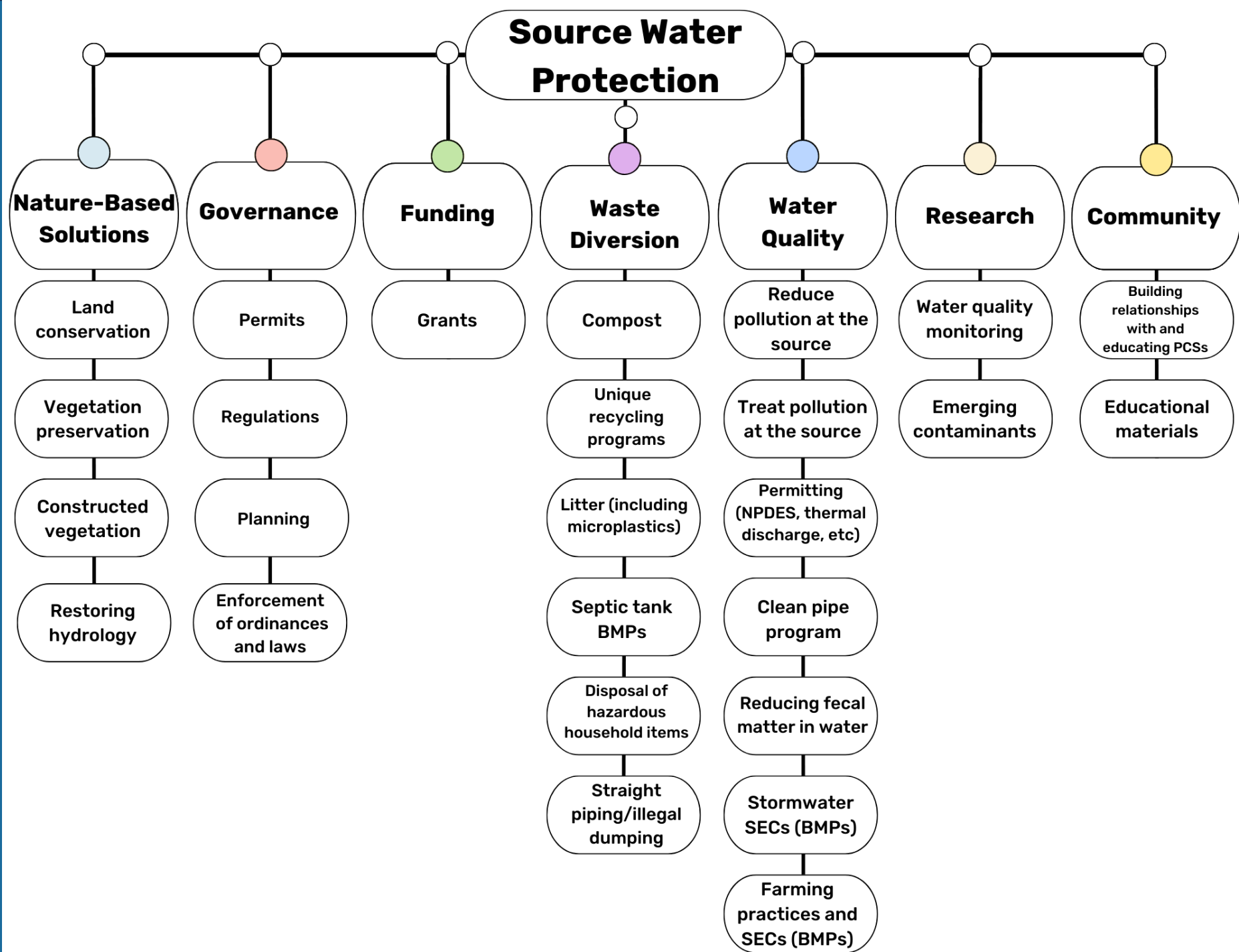
Innovation

Communication




Mutually Beneficial Initiatives

- ▶ **GOAL 4: DEVELOP FUNDING STRATEGIES IN PARTNERSHIPS WITH ACTIVE PCSS TO IDENTIFY SOLUTIONS THAT ARE MORE COST-EFFECTIVE WHEN TREATED ON-SITE INSTEAD OF AT THE WATER TREATMENT PLANT.**
- ▶ *Performance Measure: Once the funding program is established, fund at least one project annually to reduce contaminants from entering the Cape Fear River.*





Solution Gaps: Water Quality

- ▶ Upper CFR Basin:
 - ▶ Farming practices
 - ▶ Middle CFR Basin:
 - ▶ Reducing fecal matter in water
 - ▶ Treating pollution at the source
 - ▶ Lower CFR Basin:
 - ▶ Treating and reducing pollution at the source
- 



Solution Gaps: Waste Diversion

- ▶ Upper CFR Basin:
 - ▶ Illegal dumping
- ▶ Middle CFR Basin:
 - ▶ Illegal dumping
 - ▶ Septic tank BMPs
- ▶ Lower CFR Basin:
 - ▶ Illegal dumping





Solution Gaps: Nature Based

- ▶ Upper CFR Basin: *none*
- ▶ Middle CFR Basin:
 - ▶ Vegetation preservation and construction
- ▶ Lower CFR Basin:
 - ▶ Vegetation preservation




Solution Gaps: Governance and Funding

- ▶ Upper CFR Basin:
 - ▶ Enforcement of ordinances and laws
- ▶ Middle CFR Basin:
 - ▶ Permitting, regulation, and planning
 - ▶ Enforcement of ordinances and laws
- ▶ Lower CFR Basin:
 - ▶ Enforcement of ordinances and laws
 - ▶ Grant database



Solutions Gaps: Research

- ▶ Upper CFR Basin:
 - ▶ Emerging contaminant research database
 - ▶ Middle CFR Basin:
 - ▶ Water quality monitoring
 - ▶ Emerging contaminant research database
 - ▶ Lower CFR Basin:
 - ▶ Emerging contaminant research database
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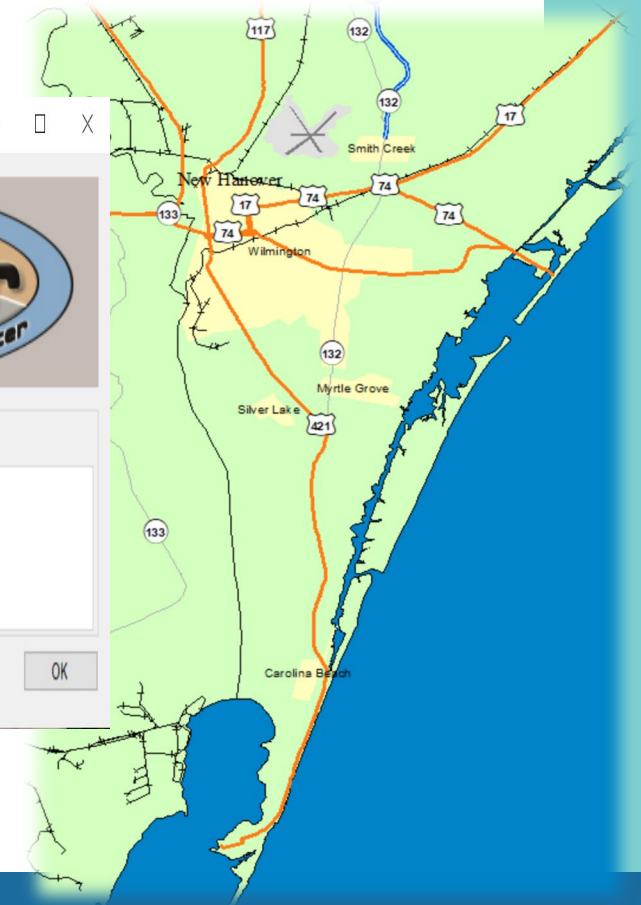


Solution Gaps: Community

- ▶ Upper CFR Basin:
 - ▶ Building relationships with and educating PCSs
- ▶ Middle CFR Basin:
 - ▶ Building relationships with and educating PCSs
- ▶ Lower CFR Basin: *none*

ICWater Software

- ▶ Incident Command Tool for Drinking Water Protection
- ▶ GIS-based tool
- ▶ Models the timing of containments moving through the water system
 - ▶ National Hydrography Dataset (NHD)
 - ▶ RiverSpill Model
 - ▶ Real-time gauge data from USGS
 - ▶ Contaminant database
- ▶ Databases for public drinking water intakes, municipal and industrial dischargers, dams, reservoirs, and transportation networks



Downstream Asset Report

Incident Description

Incident Date and Time: August 11, 2015 at 1:00 AM

Incident Location:

Coordinate: 34.46982 Latitude, -78.36423 Longitude

Instantaneous Release with Mass: 50000.00 lbs

Approximate Location: 0.04 miles from Zara, Bladen, North Carolina

Agent Type: Chemical

Agent Name: Benzene

Level of Concern: 0.005 mg/l

Half-life: 16 days

Flow Type: Realtime Gage

Gage Used: 02105769

Velocity Factor: 0.650

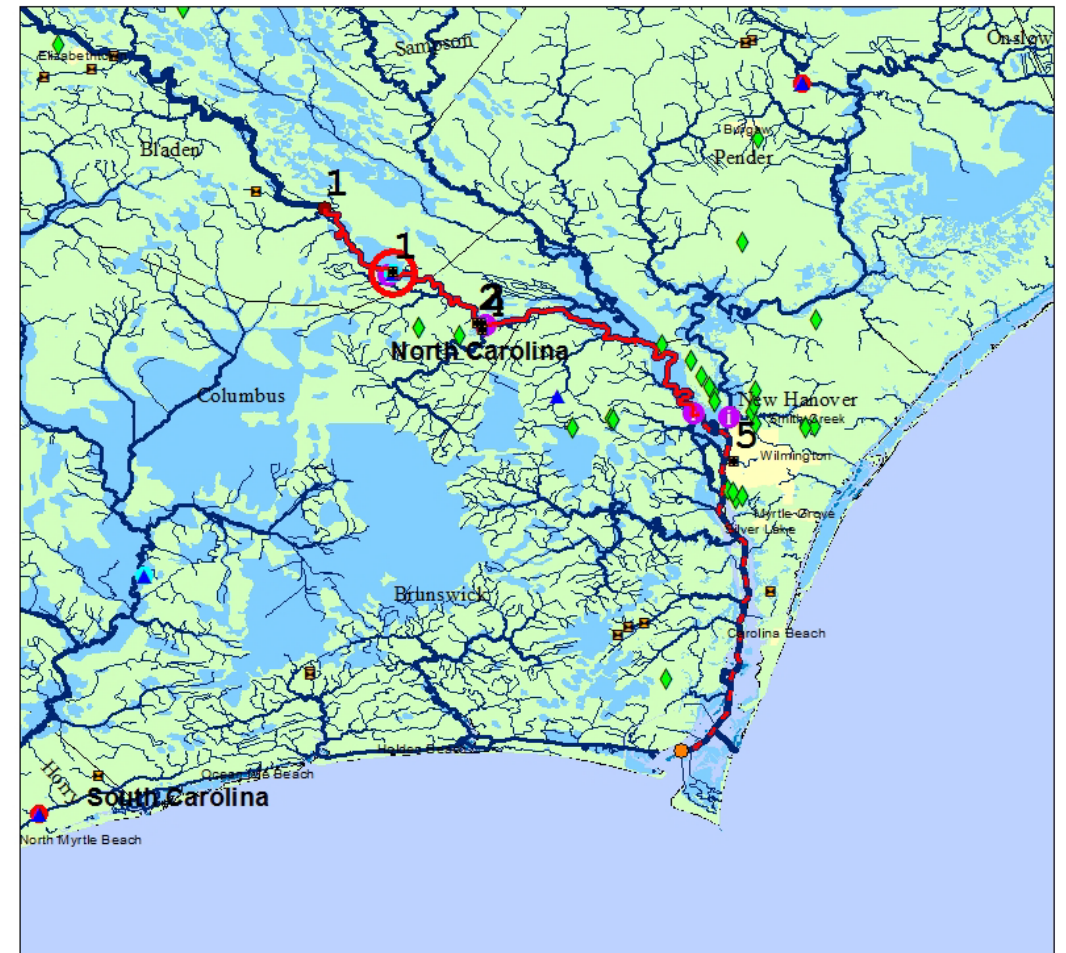
Cutoff Time: 168.0 hours

Intakes

Index	Name	City	State	Distance (miles)	Peak Concentration	Lead Time	Peak Time	Trail Time
1	WILMINGTON WATER DE	WILMINGTON	NC	8.187	55.98957	8.202	10.932	15.162
2	RIEGEL WOOD S D	RIEGEL WOOD	NC	17.227	30.59506	20.086	24.276	32.446
3	WILMINGTON WATER DE	WILMINGTON	NC	38.543	11.75853	49.351	57.141	73.551

National Inventory of Dams

Index	Name	City	State	Distance (miles)	Peak Concentration	Lead Time	Peak Time	Trail Time
1	LOCK AND DAM #1	BLADEN	NC	8.230	55.91486	8.243	10.983	15.223
2	HOLTRACHEM STORMWATER WASTE LAGOON	COLUMBUS	NC	16.674	32.42371	19.272	23.342	31.282
3	INTERNATIONAL PAPER BLACK LAGOON POND #2	COLUMBUS	NC	16.898	31.83135	19.605	23.715	31.755
4	INTERNATIONAL PAPER BLACK LAGOON POND #3	COLUMBUS	NC	17.075	31.30812	19.860	24.110	32.130
5	GREENFIELD LAKE DAM	NEW HANOVER	NC	43.422	8.06081	56.484	65.164	83.394



Dams: National Inventory of Dams

- Flood Control
- Other

Downstream Trace

- Above LOC
- Transition Zone
- Below LOC
- Above LOC, Tidal Region
- Transition Zone, Tidal Region
- Below LOC, Tidal Region



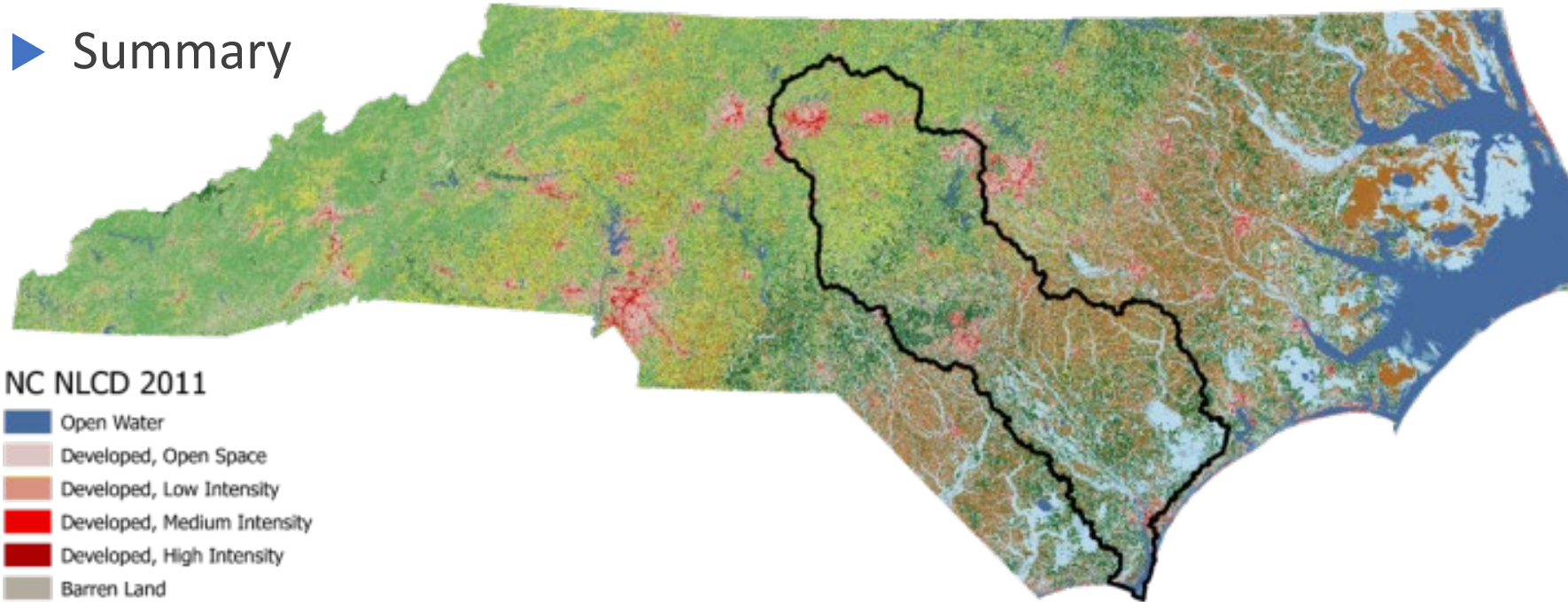
ICWater Software cont.

- ▶ Why is this software important to the SWPP?
- ▶ CFPUA's current goals for IWater:
 - ▶ Develop a standard operating procedure that will be document controlled to track revisions
 - ▶ Ensure multiple departments have the software in case of an emergency
 - ▶ Ensure employees are regularly trained on the software
- ▶ Goal for the SWPP:
 - ▶ Create a network of individuals that have access to and can use the software



Summary

► Summary



NC NLCD 2011

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands
- Basin

Cape Fear River Watershed

2,373,500 ha- largest watershed in NC

Urban Areas: Greensboro, portions of Durham, Fayetteville, Wilmington
2016 NLCD Land Cover: 21% Agriculture, 11% Developed, 39% Forested

National Land Cover Database (NLCD) Data courtesy of the U.S. Geological Survey.



Conclusion

Our vision is “to meet the needs of the community by restoring, enhancing, and protecting drinking water quality in the Cape Fear River watershed to ensure a safe, sustainable, and pollution-free source of water.”

Next Steps:

- ▶ Collect data and create an ongoing process to do so
- ▶ Identify low-hanging fruit and prioritize mitigation strategies
- ▶ Create specific missions for “Action Teams” to support the vision of the SWPP



Questions?

Contacts:

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EMSD: Sustainability@cfpua.org

Source Water Protection Plan:

[Drinking Water Protection Program | NC DEQ](#)

EMSD Sustainability:

[Environmental Management and Sustainability | Cape Fear Public Utility Authority Official Site \(cfpua.org\)](#)



Sustainability

Those who planned this event felt it was important to have the smallest impact on the natural environment as much as possible.

- The materials for the event were distributed electronically for participants to decide whether they would like a printed copy.
- All of the plates, cups, cutlery, etc., is fully compostable and will be delivered to the NHC Composting Facility later today.
- The food is locally procured, and vegan/vegetarian options are available.
- Please take care to turn off your electronics when not in use.
- We wanted to point out that MARBIONC is a LEED Silver-certified building