Options for Water Supply Sustainability and Resilience

Cape Fear Public Utility Authority

Stewardship. Sustainability. Service.

2015 Water Supply Summit

October 28, 2015

Guiding Principles and Mission

CFPUA Guiding Principles

- Stewardship
- Sustainability
- Service

CFPUA Mission Statement

To provide high-quality service in an environmentally responsible manner while maintaining the lowest practical cost.

Stewardship – Sustainability - Service

Challenge: Secure Cost Effective Water Supplies for a Growing Population

POPULATION FORECASTS FOR SUB-AREAS OF REGION
FIGURE 2.5

Population	2010	2040	
	Base	Low Growth	High Growth
New Hanover County	202,667	249,026	337,054
Unincorporated	85,973	105,639	152,157
Wilmington	106,476	130,832	167,904
Beach Towns	10,218	12,555	16,993
Brunswick County	107,431	212,355	234,833
Leland	13,672	27,025	44,886
Other Brunswick	93,759	185,330	189,947
Pender County	52,217	90,261	115,742
Southeast Pender	21,190	42,423	60,186
Other Pender	31,027	47,838	55,556
3-County Region	362,315	551,642	687,629

Source: NHC Comprehensive Plan 2014 Existing Conditions Report

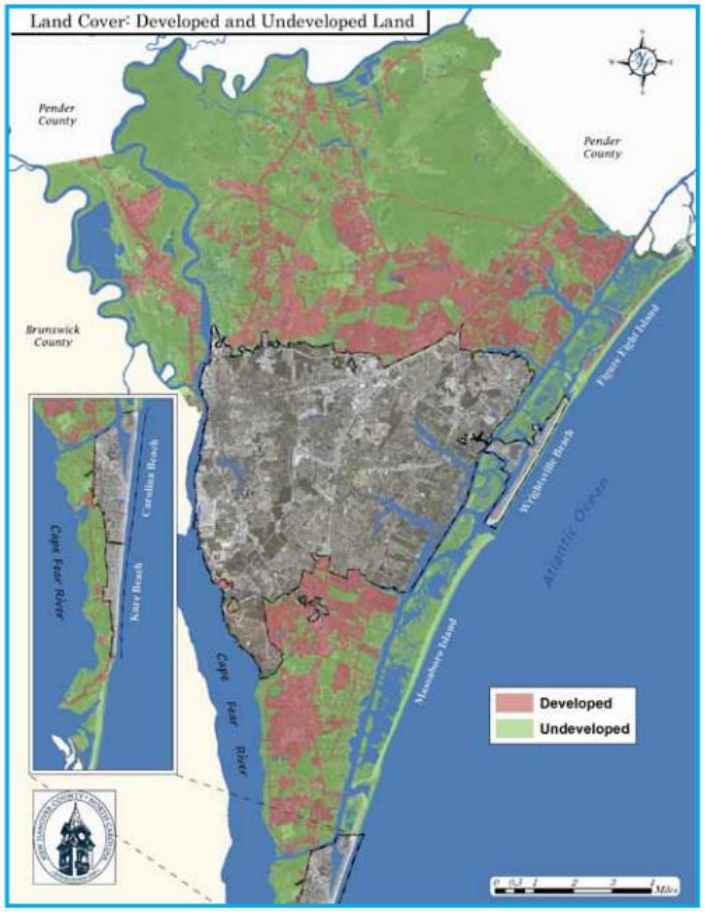
Regional Challenge:

- New Hanover County
- Brunswick County
- Pender County

All projected to grow.

All depend on the same river and aquifers for water supply.

NHC Growth Projections



Source: NHC Comprehensive Plan 2014 Existing Conditions Report

NHC Comprehensive Plan 2014:

NHC Population Growth Projections:

- **from 203,000 in 2010**
- **to 337,000 in 2040**
- **66% in 30 years.**

True? Who has a crystal ball?

Planning for water supply sustainability and resilience is essential for our community.

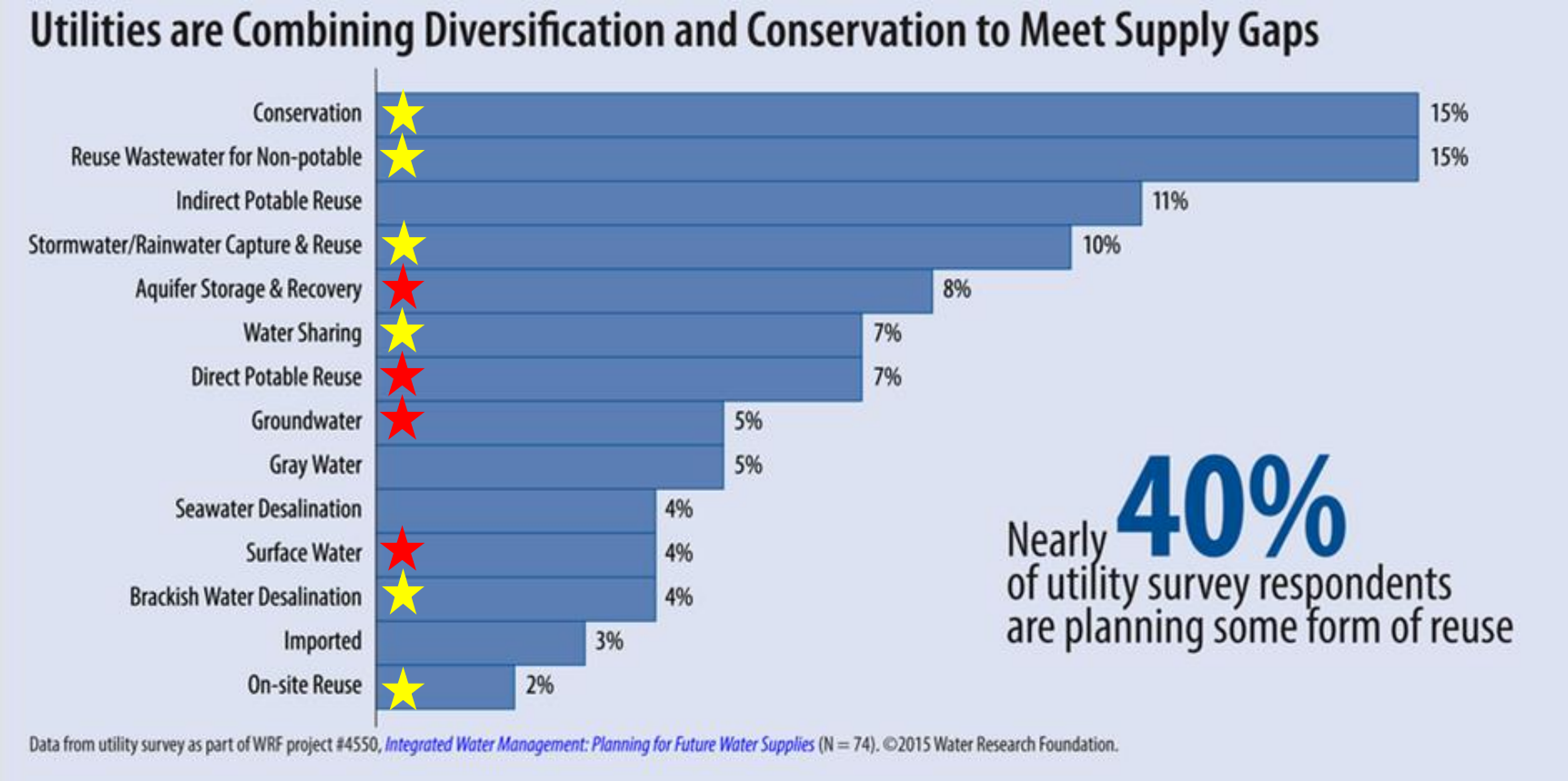
CFPUA Supply vs Demand

Year	2014	2020	2030	2040
Supply (Surface Water & Ground Water)	61.494 MGD	62.152	62.152	62.152
Average Day Demand	19.483 MGD	21.509	24.583	28.102
Peak Day Demand (1.5 x Average)	29.224 MGD	32.264	36.875	42.153

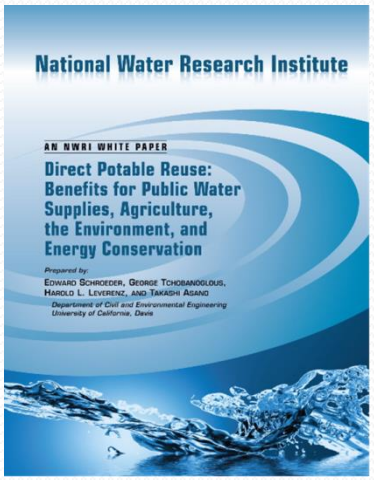
MGD = Million Gallons per Day

Assumes 44% demand growth and no loss of supply.

Water Resource Federation Stats



CFPUA Water Supply Resources Planning



- Surface Water Withdrawals
- Groundwater Withdrawals
- Aquifer Storage and Recovery
- Direct Potable Reuse
- Conservation

Surface Water: Resource and Challenges

Resource:

Lower Cape Fear River

- 53.3 MGD Raw Water

Threats:

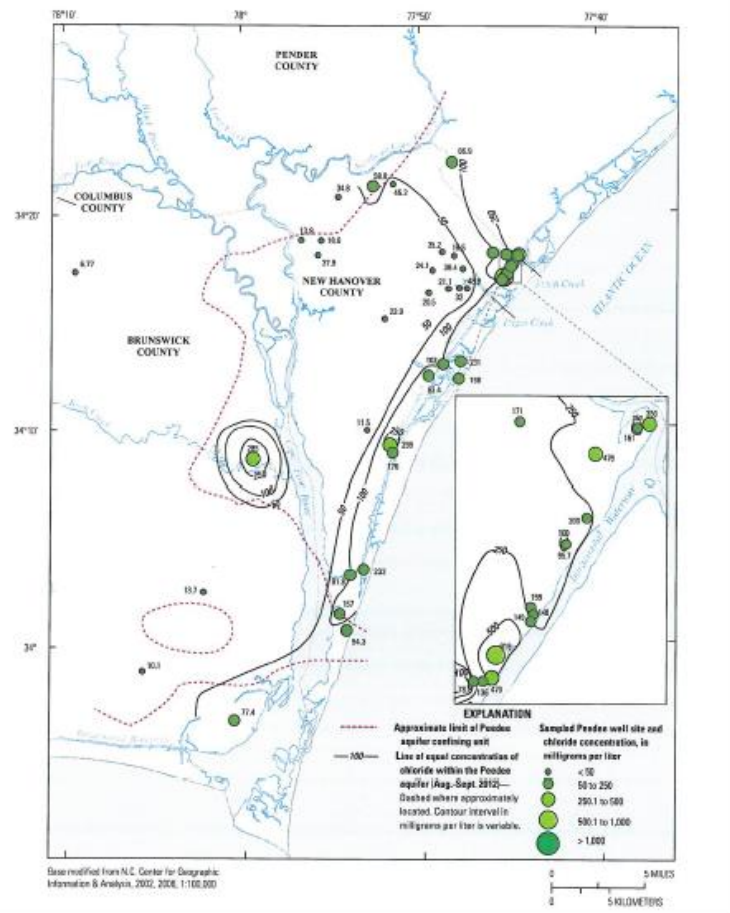
- Upstream Withdrawals
- Lower Natural Flows

Regulatory Challenges:

- No Allocation Permitting
- No Permit, No Security

Source: NOAA http://www.regions.noaa.gov/secar/index.php/cape-fear/

Groundwater: Resource and Challenges



Resources:

- Castle Hayne Aquifer
- Peedee Aquifer

Threats:

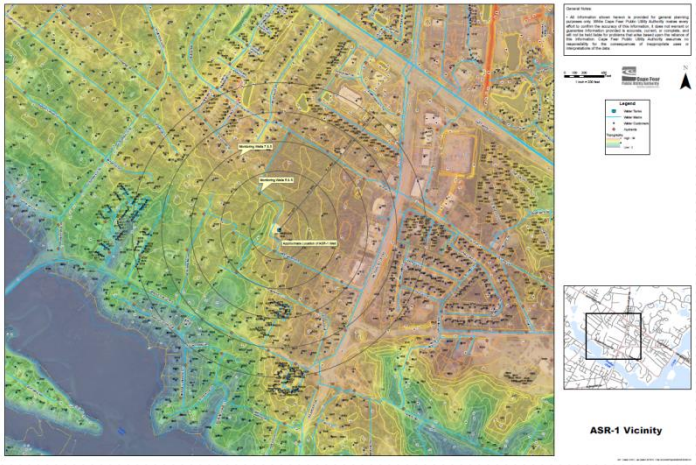
- Aquifer Depletion
- Salt Water Intrusion

Regulatory Challenges:

- Managing Withdrawals
- Modeling Change

Source: USGS Hydrogeology, Hydraulic Characteristics, and water-Quality Conditions in the Surficial, Castle Hayne, and Peedee Aquifers of NHC, NC

ASR: Resource and Challenges



Resource:

- Stores Surface Water in Aquifer
- Treats Disinfection Byproducts
- Shaves Peak Demands

Threats:

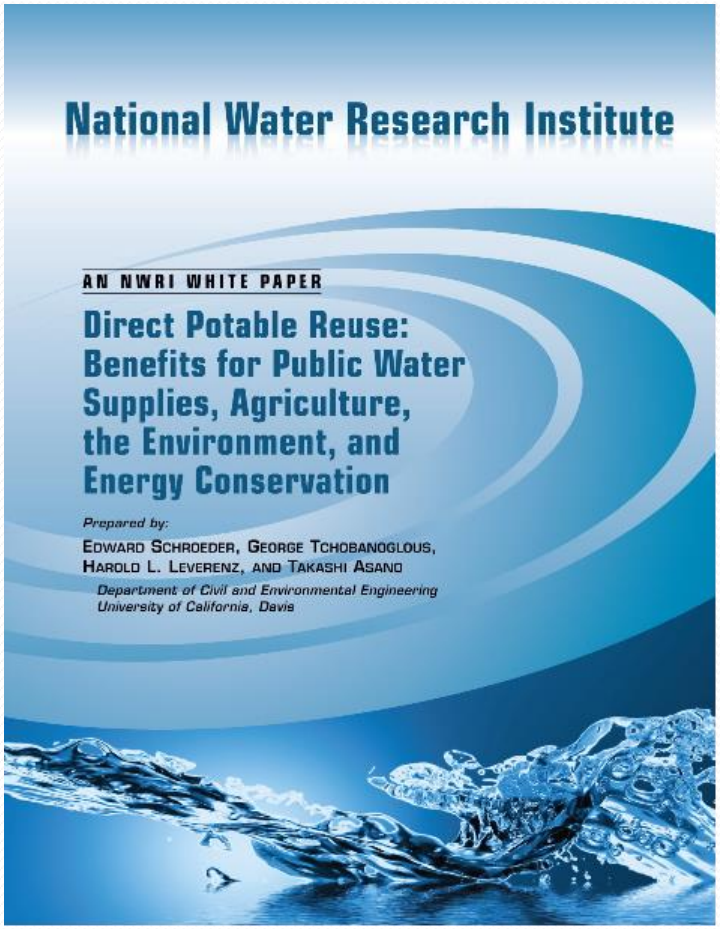
- Other Wells in Close Vicinity
- Time to Permit and Operate

Regulatory Challenges:

- No ASR Protection Zone
- Growing Familiarity in NC

Source: USGS Hydrogeology, Hydraulic Characteristics, and water-Quality Conditions in the Surficial, Castle Hayne, and Peedee Aquifers of NHC, NC

Direct Reuse: Resource and Impediments



Source: NWRI

Resource:

Northside WWTP Effluent

- 16 MGD Advanced WWTP
- 2 Miles from Water Plant

Threats

- Investment Before Acceptance
- Public Perception

Regulatory Challenges:

- Unproven Regulatory Path
- New in North Carolina

Options for Water Supply Sustainability and Resilience

Surface Water Withdrawals

- Impacted by Upstream Withdrawals and Precipitation

Groundwater Withdrawals

- Impacted by Aquifer Levels and Salinity

Aquifer Storage and Recovery

- Impacted by Incursion by Other Wells

Direct Potable Reuse

- Impacted by Public Perception and Regulatory Path

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