



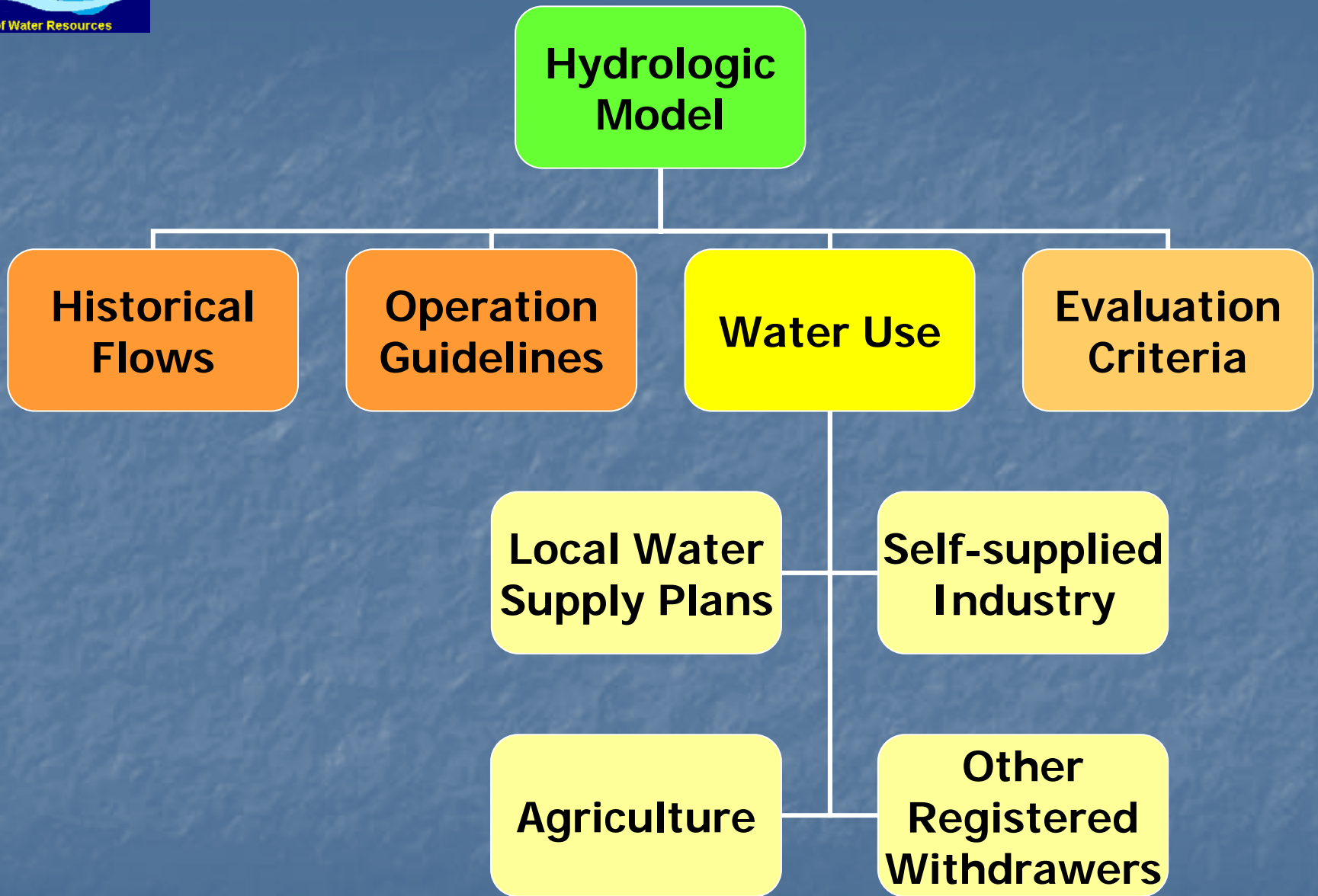
# Cape Fear River Basin Model Update

**Don Rayno**

**Division of Water Resources**

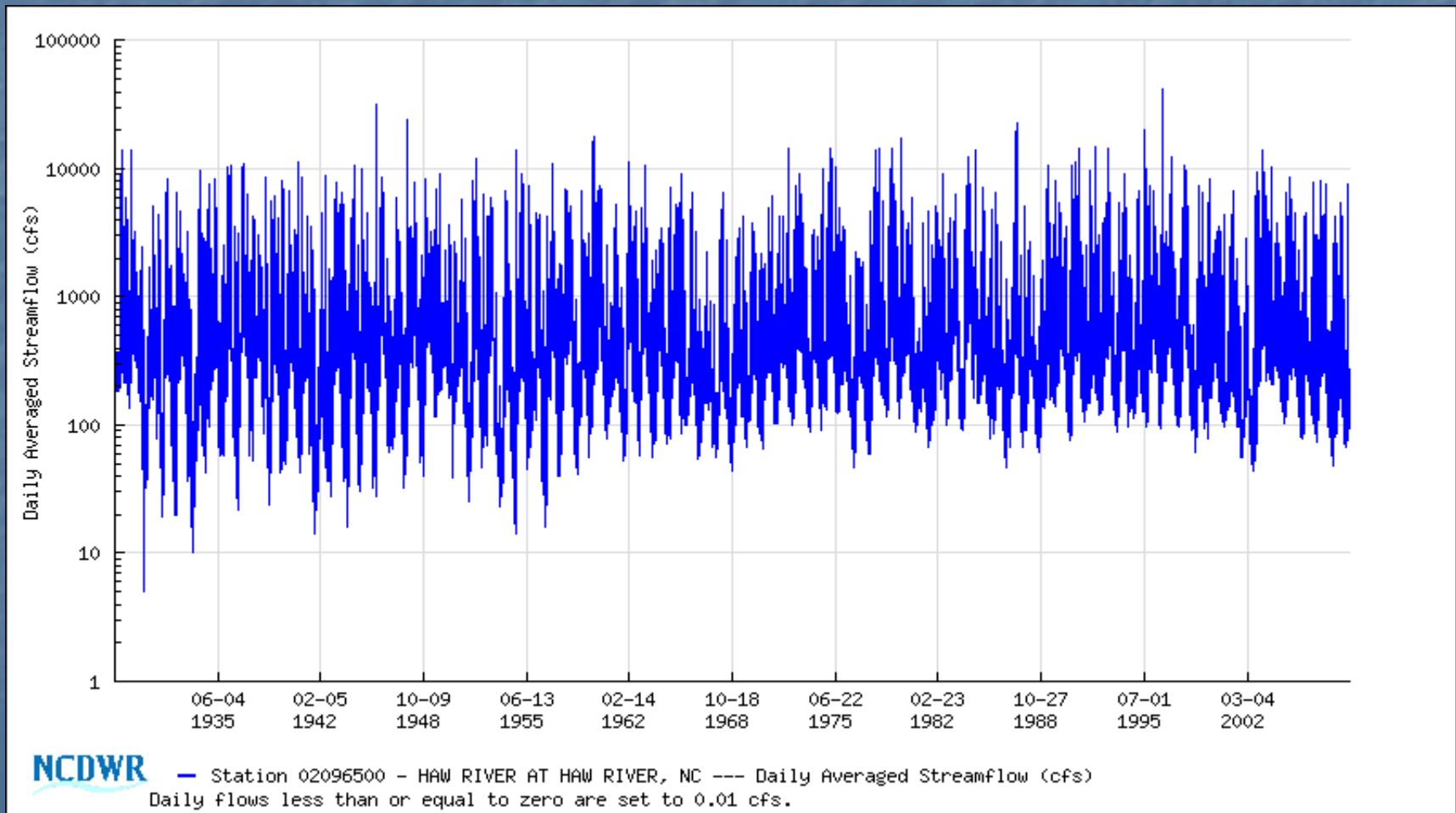
**North Carolina Department  
of**

**Environment and Natural Resources**



# Historical Flows

## 80 years of flow data



# Operation Guidelines

Release water to meet Lillington target flow of:

Flow-Aug. Pool	Minimum Release	Release water to meet Lillington target flow of:
> 100 %	40 cfs	600 cfs
80-100 %	40 cfs	600 cfs
60-80 %	40 cfs	450-600 cfs
40-60 %	40 cfs	300-450 cfs
20-40 %	200 cfs	
0-20 %	100 cfs	

## Jordan Lake Drought Protocol



**Operations  
Guidelines**

**Examples**

- **Quantity and timing of specific flows**
  - Aquatic habitats
  - Water quality protection
  - ✓ Intake coverage
  - Recreation
- **Reservoir water level limits and timing**
  - Structural limits
  - Aquatic habitat protection
  - ✓ Intake coverage
  - Boat ramp access
  - Authorized purposes and storage allocations



## Primary Sources of Water Use Data

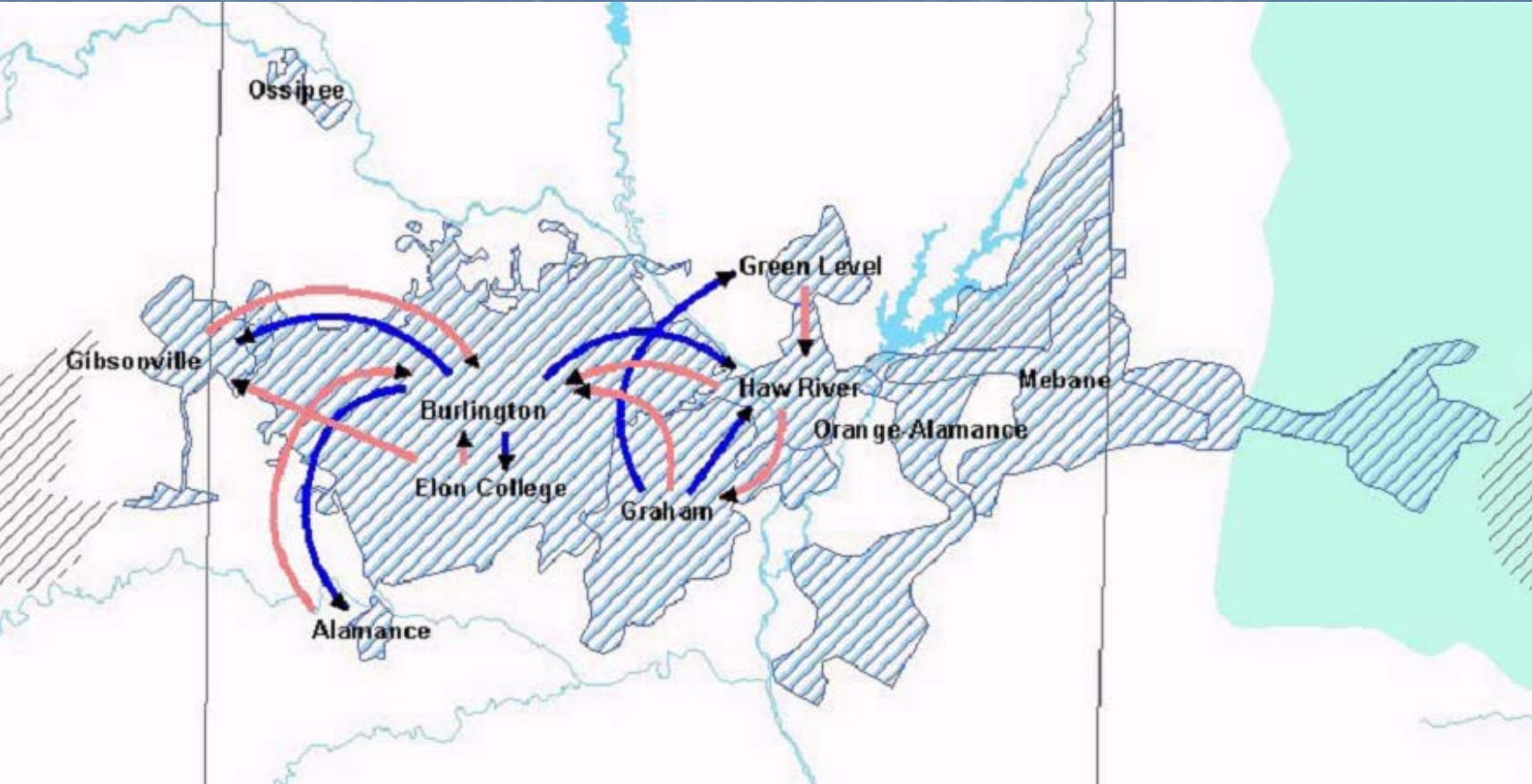


- **Water Withdrawal Registrations**
  - **Agriculture > 1,000,000 gallons per day**
  - **Non-agriculture > 100,000 gallons per day**
  
- **Local Water Supply Plans**
  - **Local Government Water Systems**
  - **Other Large Community Water Systems**
  
- **Annual Use Reporting due by April 1**



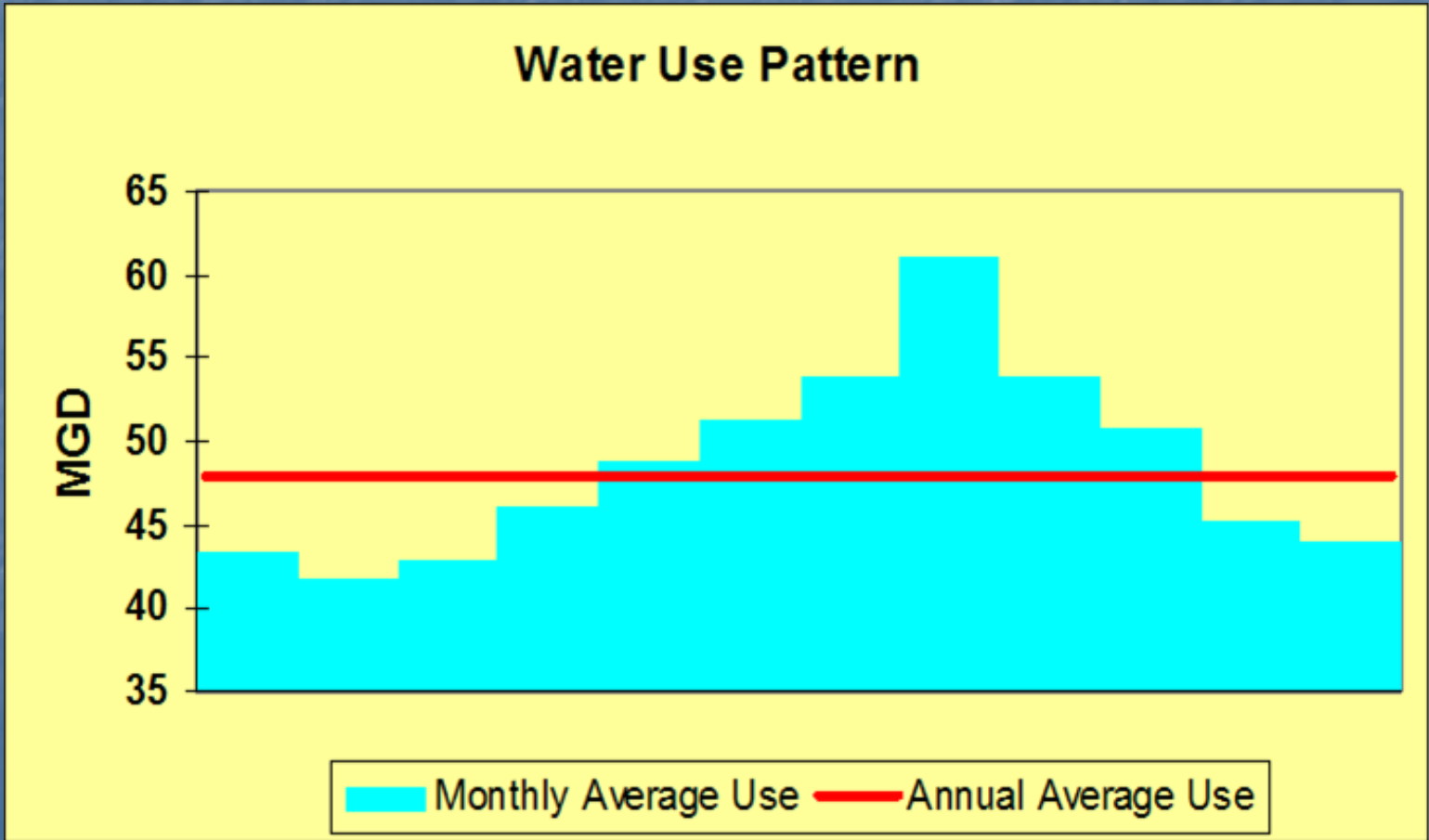
# Water Use

## Water and Treatment Sharing



**Water Use**

**Seasonal Use  
Pattern**

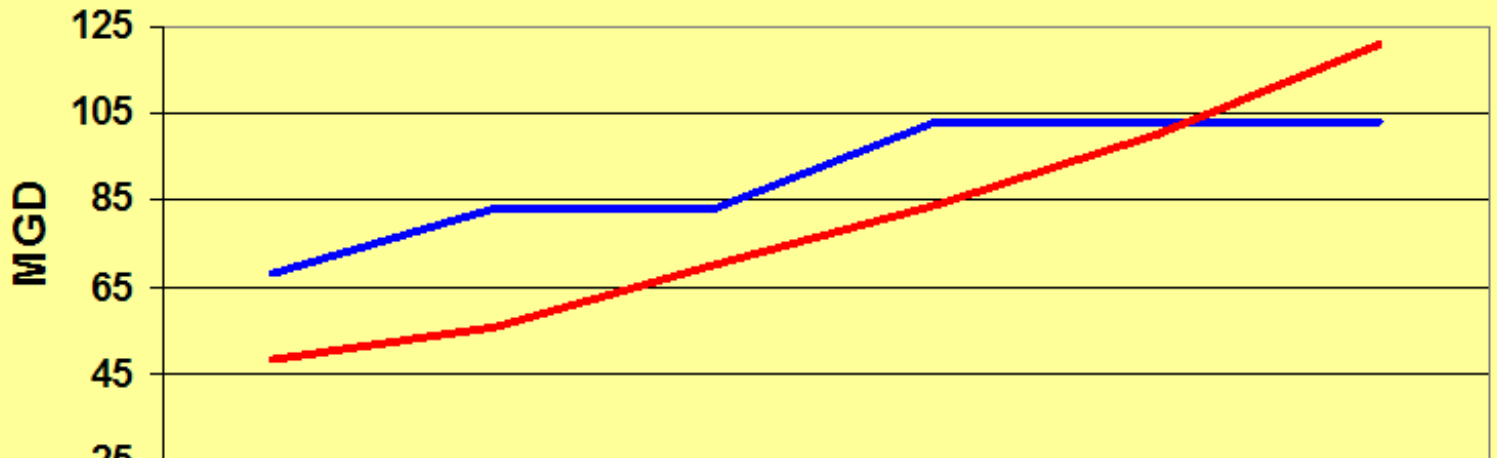




# Water Use

## Estimated Future Demands

**2006 Supply and Demand Projections**



	2006	2010	2020	2030	2040	2050
<b>Supply</b>	68	83	83	103	103	103
<b>Demands</b>	48	56	70	84	101	121

# Major Assumptions

- **Future withdrawals will come from current intake locations**
- **Future wastewater discharges will be the same percent of withdrawals at the same locations**
- **Sellers will continue to meet buyers' needs**
- **Local utilities are the best judges of future system growth**
- **Future flows will be within the range of flows in the historical record**



How often?  
What's the chance?

**Evaluation  
Criteria**





# What questions need answering?

- What's the chance of getting \_\_\_\_\_ amount of water at \_\_\_\_\_?
- How much and when is water needed for the various services we expect the basin to provide?



## Desired additions:

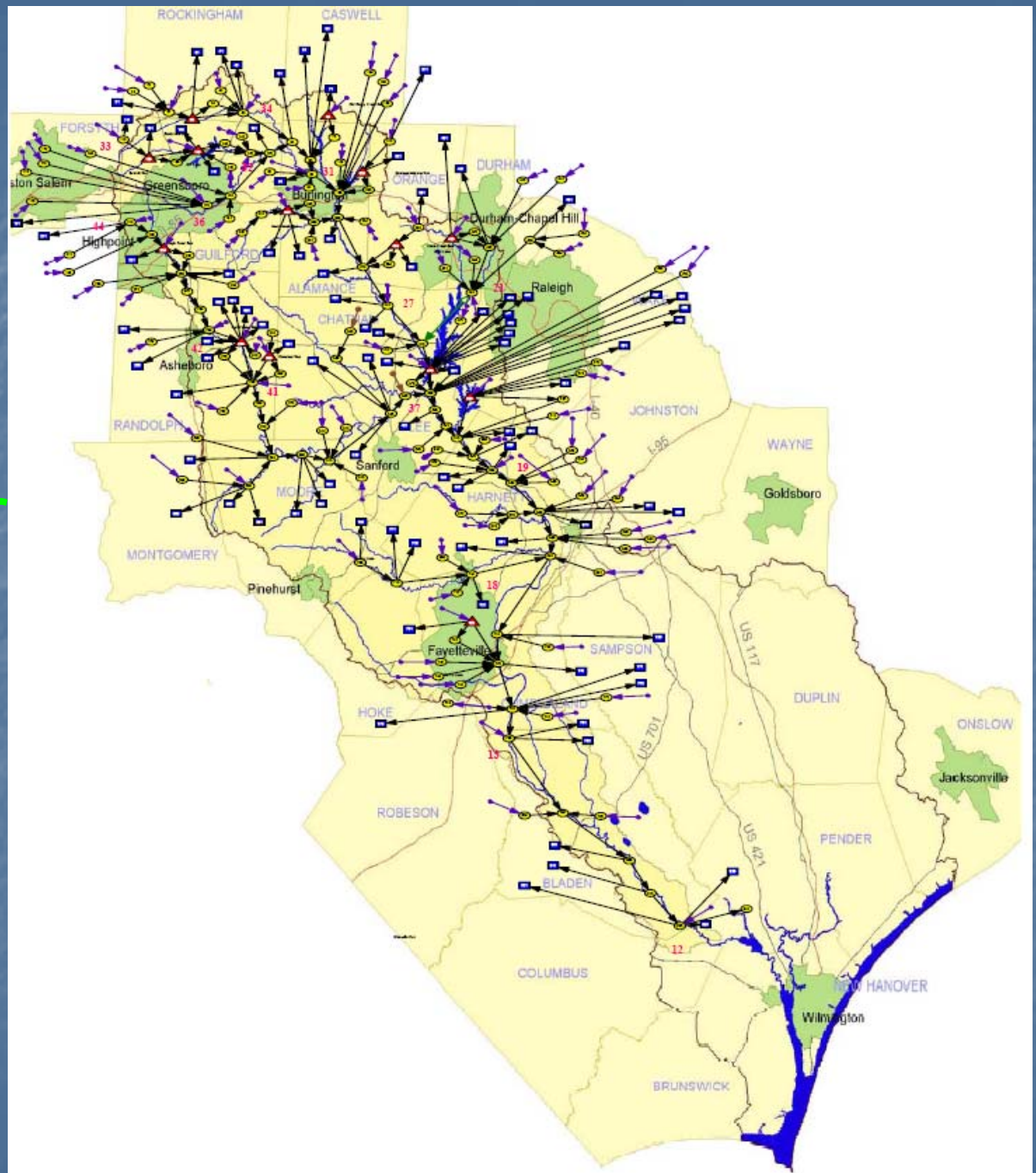
- Rocky River – Siler City
- Link discharges to withdrawals
- Water Shortage Response Plans
- Ecological flow nodes
- Flow pattern options

# Review System information:

- Operating protocols for multi-source water systems
  - How are choices made between sources
- Future wastewater discharge volumes/locations
- Review/update reservoir storage data
- Review intake location/elevation data
- Projections to 2060
- WSRP details
- New connections or buy-sell arrangements

# Hydrologic Model

## Cape Fear River Model Schematic





# Let's manage our limited supply wisely?



*North Carolina*



[www.ncwater.org](http://www.ncwater.org)

919-733-4064

