

Collaborative approaches to managing drought: Stakeholder networks and institutional change in the Carolinas

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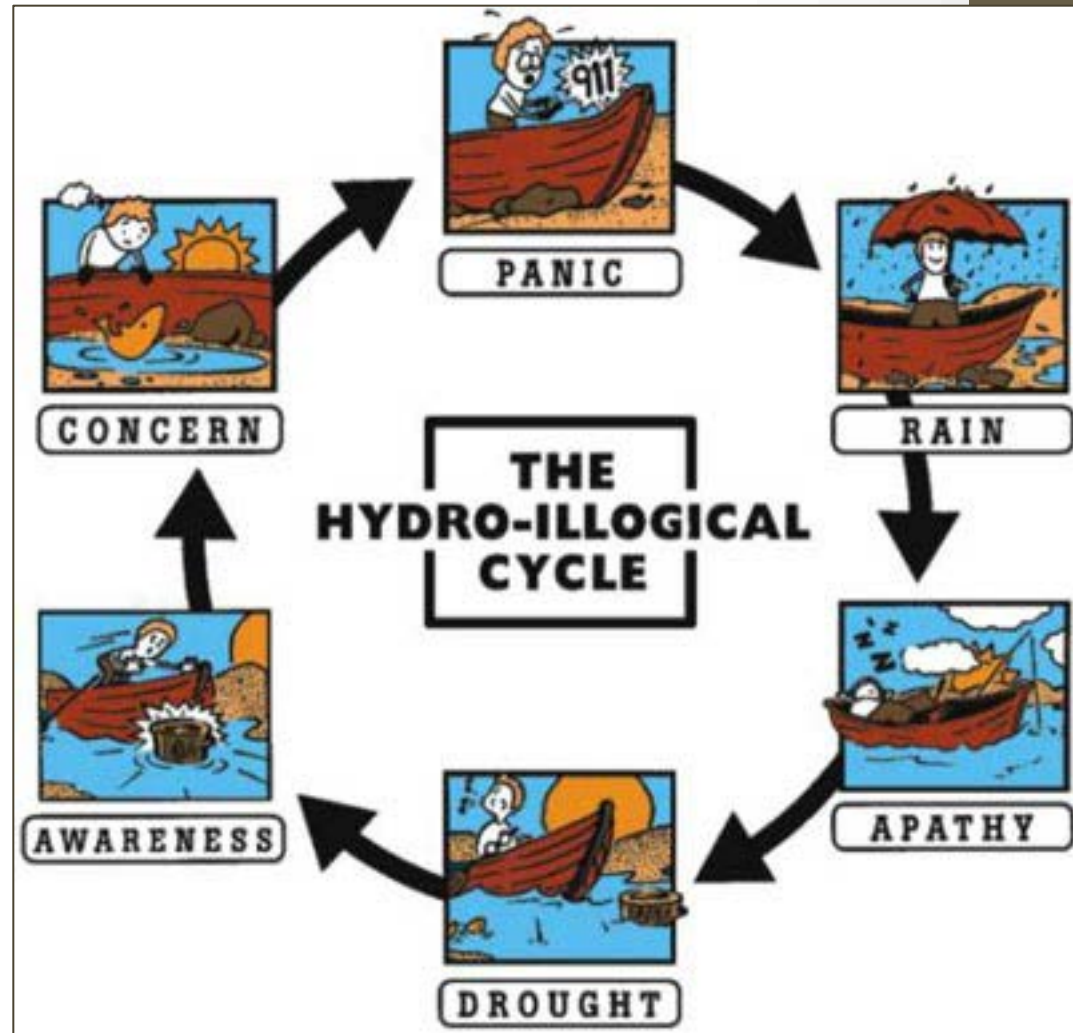
University of South Carolina

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Drought challenges

- Response is reactive, not proactive
- Plans are developed, but not implemented
- Management is fragmented, not coordinated



Institutional challenges

Drought planning and management:

- Focuses on monitoring, technology, response plans
- Uses a narrow conceptualization of “institutional capacity”
 - Plans, water allocation rules, organizations
- Neglects “informal” institutions
 - Values, norms of behavior, cultural beliefs, social practices, routines



Step 1	Appoint a drought task force
Step 2	State the purpose and objectives of the drought preparedness plan
Step 3	Seek stakeholder participation and resolve conflict
Step 4	Inventory resources and identify groups at risk
Step 5	Prepare/write the drought preparedness plan
Step 6	Identify research needs and fill institutional gaps
Step 7	Integrate science and policy
Step 8	Publicize the drought preparedness plan and build public awareness
Step 9	Develop education programs
Step 10	Evaluate and revise drought preparedness plan

Figure 2 Ten-step planning process. (*Source:* National Drought Mitigation Center, University of Nebraska, Lincoln, Nebraska, USA.)

"Drought Preparedness Planning: Building Institutional Capacity," Donald A. Wilhite, Michael J. Hayes, and Cody Knutson, In *Drought and Water Crises: Science, Technology, and Management Issues*, D.A. Wilhite, ed. (CRC Press, 2005).

Institutional challenges

- Increasing calls for coordination, but few examples or assessments of how to accomplish in practice
- What types of institutional changes are necessary to facilitate cross-scalar management and coordination?
- Formal and informal institutions
 - Roles and responsibilities
 - Decision-making authority
 - Participation and representation
 - Information and knowledge
 - Perception of drought risks
 - Relationships and networks

The case study

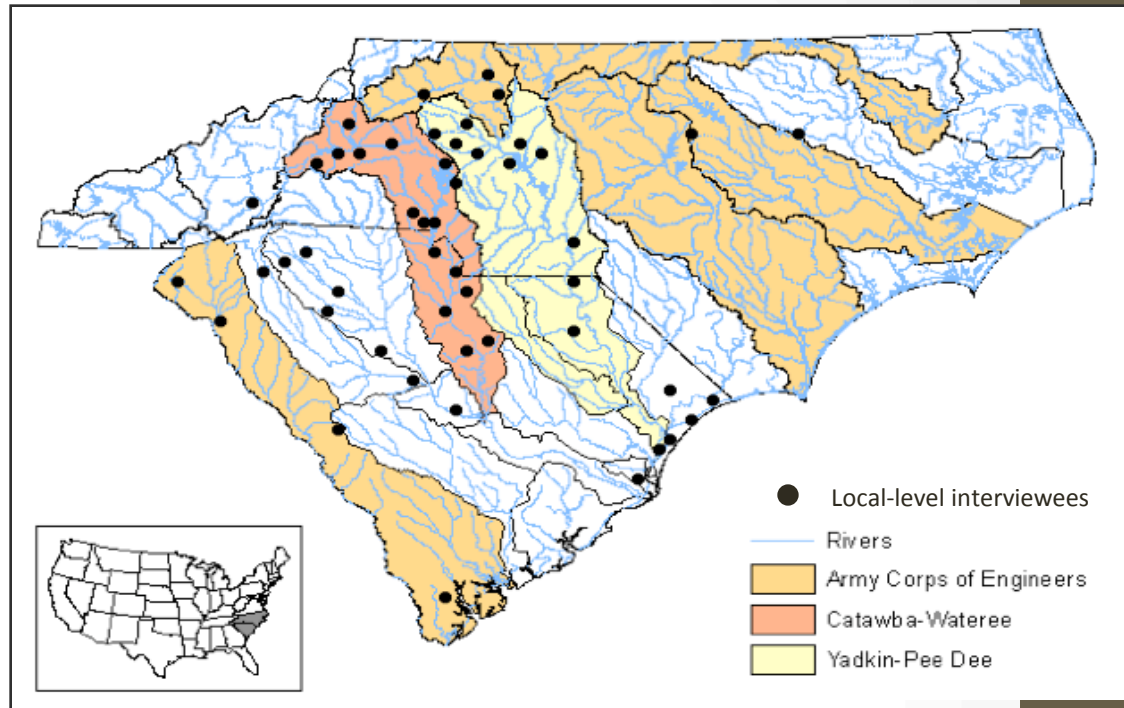
- The evolution of drought management in North Carolina and South Carolina
 - 1998-2008
 - Local, state, and basin-level adaptations
 - Water management sector
 - Institutional change

Why were there different levels and types of engagement in basin drought response and management activities?

- How have institutional changes through the FERC relicensing process contribute to more coordinated and collaborative drought management?
- How has the interplay between formal and informal rules contribute to basin-specific outcomes?

Data collection, 2007-2008

- 87 interviews
- 69 drought and water management meetings, conference calls
- Documents



- “Top-down”
 - elite interviews, documents
- “Bottom-up”
 - on-the-ground decision-making

Organization Type	Total	State		
		NC	SC	NC/SC
Community water system	49	24	25	
Industry (including licensees)	6	3	2	1
Local government	3	3		
Regional government (COGs)	3	2	1	
State agency	11	6	5	
Federal agency	4	1	3	
Engineering consulting firm	2	1		1
Lake association	2		1	1
Non-profit organization	7	2	2	3
Totals	87	42	39	6

Collaborative institutions

Indicators of collaboration

- Formal institutions and linkages
 - Shared rules, joint membership
 - Response plans, protocols
 - Water provision, monitoring, evaluation activities
- Informal institutions and linkages
 - Shared beliefs and values, social interactions and relationships, trust, norms of reciprocity, “rules-in-use”
 - Formed through decision-making and social processes, social learning
 - Interviews, drought management meetings

Institutional context, pre-1998

- Local
 - Temporary water supply-demand imbalance
 - No impacts to customers
 - Structural solutions
 - Engineering and technical expertise
- State
 - Limited oversight of water development, use
 - Skeletal structure for drought response
- Basin
 - Non-existent or outdated drought plans
 - “With all these reservoirs we would never run out of water”

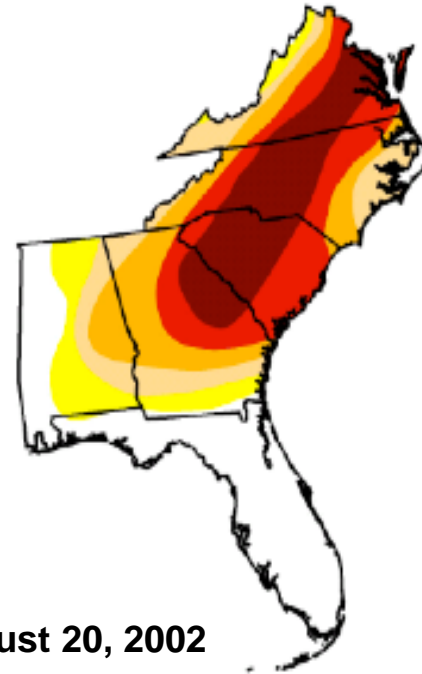


Adaptation triggers, drivers, and opportunities

- Drought (1998-2002)
- Water management stresses
- FERC relicensing processes
 - Federal Energy Regulatory Commission



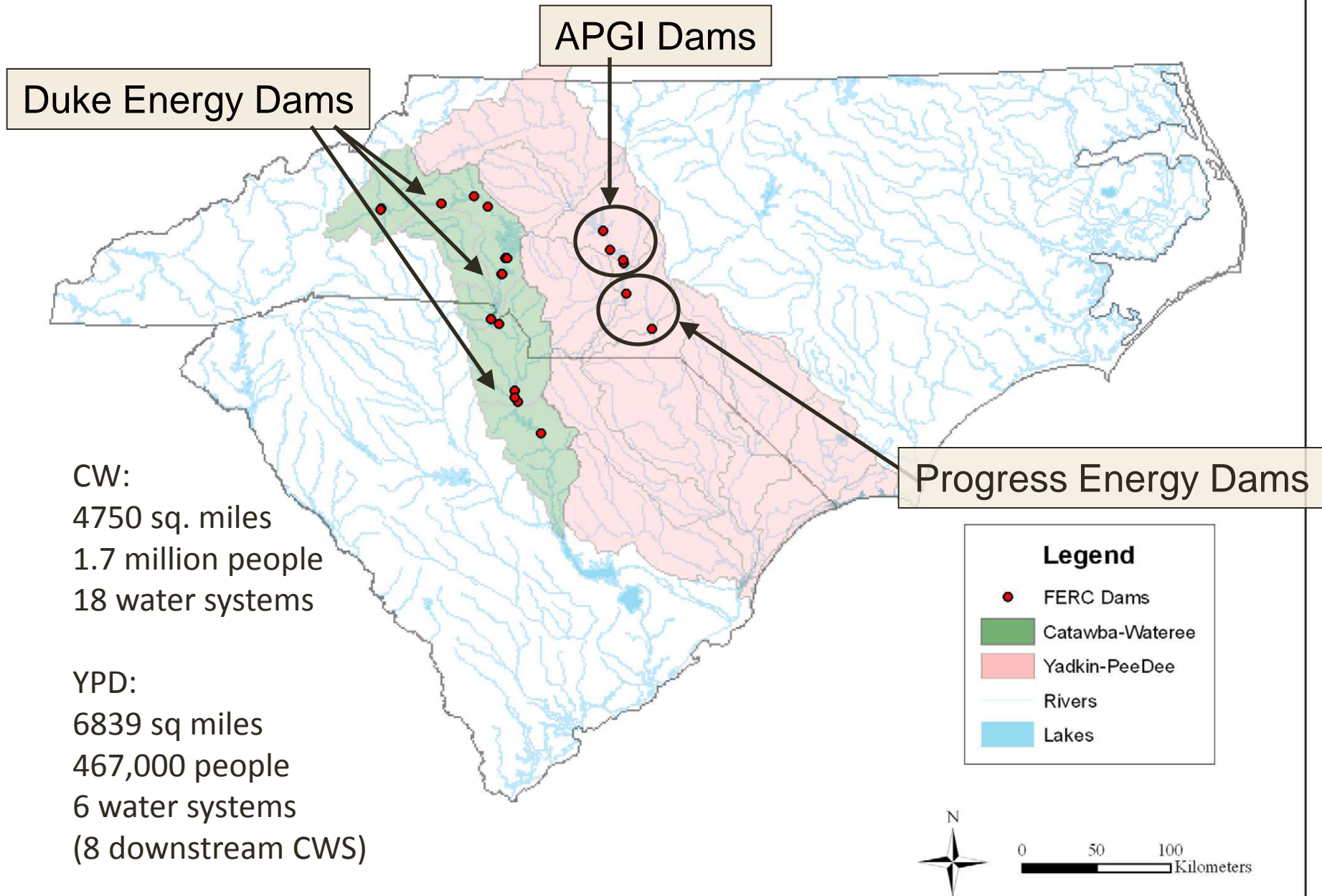
U.S. Drought Monitor Southeast



August 20, 2002

Source: <http://drought.unl.edu/dm>

An Opportunity: FERC Relicensing, 2003-2006



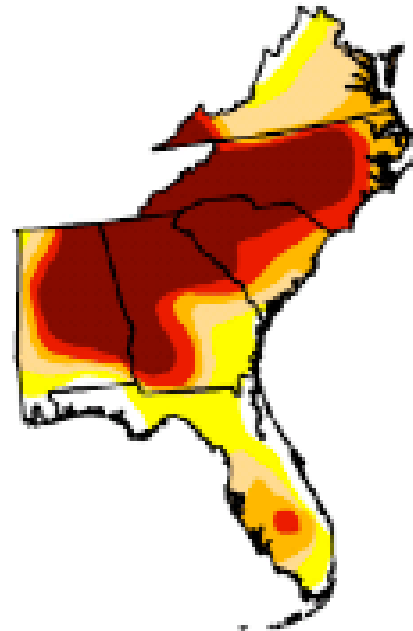
Basin-level adaptations

- FERC relicensing processes:
 - Contributed to the development of new protocols and organizations in the study basins
 - 2003-2006
 - Catawba-Wateree
 - Yakin-Pee Dee
- Different types and levels of engagement in 2007-2008
 - Another record-breaking drought

Drought (2007-2008)



December 25, 2007



Basin-level adaptations

<u>Yadkin-Pee Dee</u> <ul style="list-style-type: none">• YPD Drought Contingency Plan (2003)• Local plans follow local triggers	<ul style="list-style-type: none">• Distribute risks, impacts fairly across water users• YPD Drought Management Team	<ul style="list-style-type: none">• Conservative hydropower operations during drought• Engineering, hydrological expertise• Basin-level data, information
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<u>Catawba - Wateree</u> <ul style="list-style-type: none">• CW Low Inflow Protocol (2006)• Local plans follow basin-level decisions	<ul style="list-style-type: none">• Address risks and impacts collectively• CW Drought Management Advisory Group	<ul style="list-style-type: none">• Group and regional decision making• Coordinated response and mitigation
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CW Coordination and Collaboration

- Formal linkages
 - Low Inflow Protocol (LIP) implemented
 - Local systems adopted LIP triggers
 - Water restrictions, communications coordinated
- Informal linkages
 - Shared knowledge of basin issues
 - Social capital, trust



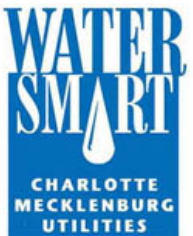
Professor Privett (*far right*) and other stakeholders hike along the Great Falls Dam. Photo: Tim Mead



Attendees at the February 17th AIP Conference discussed strategies for writing reservation statements. Photo: BRC

Social learning in the Catawba-Wateree

- “real sense of camaraderie”
- “mutual understanding about all the dependent players”
- “regional approach to conservation and monitoring”
- Challenges
 - Relinquishing local authority and decision-making power
 - Financial impacts of water use restrictions
 - Local political commitment
 - Potential conflicts with state designations



YPD Coordination and Collaboration

- Formal linkages
 - Drought Contingency Plan
 - Drought Management Team
 - Lacks specific triggers and response actions
 - No incentives or mandates for common triggers
- Informal linkages
 - Relationships from relicensing enabled discussions
 - Downstream interests represented by industry
 - Expanded participation from upstream interests

Yadkin-Pee Dee: a utilitarian perspective on collaboration

- Fair distribution of water resources, impacts
 - “share the pain”
 - “...as long as the Grand Strand and Myrtle Beach don’t have to tell the tourists that they can’t serve them water, I guess SC is happy, and I guess as long as High Rock is full, they’re happy there.”
- Benefits from licensees’ investment in engagement
 - Prevented conflicts
 - Public relations

Implications

- Resilience
 - What does it mean to be “drought-resilient” and how is resilience being built in practice?
 - Engineering or social-ecological resilience?
 - Adaptation or transformation?
 - Thresholds reached in Catawba-Wateree

Implications

- “Institutionalization”
 - How and why are new strategies adopted and implemented?
 - Enabling frameworks, formal and informal components
 - Interconnections across planning processes and programs
 - It is through practice that changes and innovations are reinforced and become standard, routine, expected
 - Monitoring and evaluation of LIP effectiveness in Catawba-Wateree

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- Contact Information

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