

NC DWQ and U.S. EPA WATERSHED RESTORATION PROGRAMS

**DWQ Use Restoration Waters Program
(URW)**

**EPA 4 Watershed Management Office
(WMO)**

Panel Objectives

- Building a system to target watersheds
- Getting support resources to locals
 - Champions, Primary and Support Partners
- Example of partner support - TVA
- Where we are after a year and a half
- Example of 3 watersheds
 - Mud Creek, Mills River and Hyatt Creek
- Where we are headed in the future
 - Engaging more partners in the system

Why Do These Programs Exist?

- **EPA and DWQ have long had as their responsibility the protection and restoration of waters,**
- **But emphasis is now on measurable Results**

Measurable Results

- **Whitehouse Office of Management and Budget**
- **Tying Federal Program funding to “Measurable Results**
 - **For EPA that translates to Clean Up of 303d Waters**

2008- 2012 Draft Strategic Targets

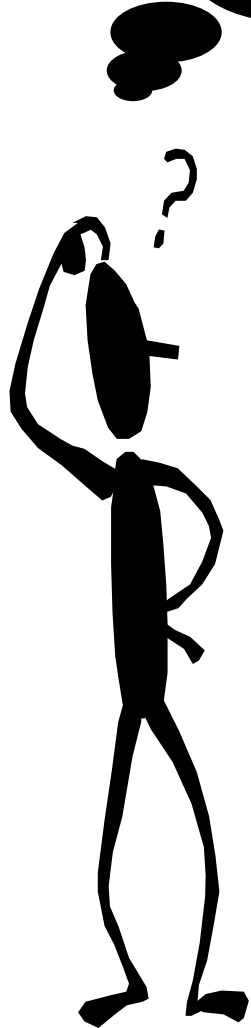
<http://www.epa.gov/ocfopage/plan/06draftarch.htm>

- **Full restoration** of impaired waters (Nat'l goal: > 2250 waterbodies restored from 2002 list)
- **Partial restoration** credit (Nat'l goal: 5200 impaired segments restored)
- Small scale **watershed improvement** (Nat'l goal: 213 impaired watersheds showing significant improvement)
- **WQ protection** (Nat'l goal: no statistical increase in % rated "poor"; no decrease in % rated "good" in national Wadeable Stream Survey)

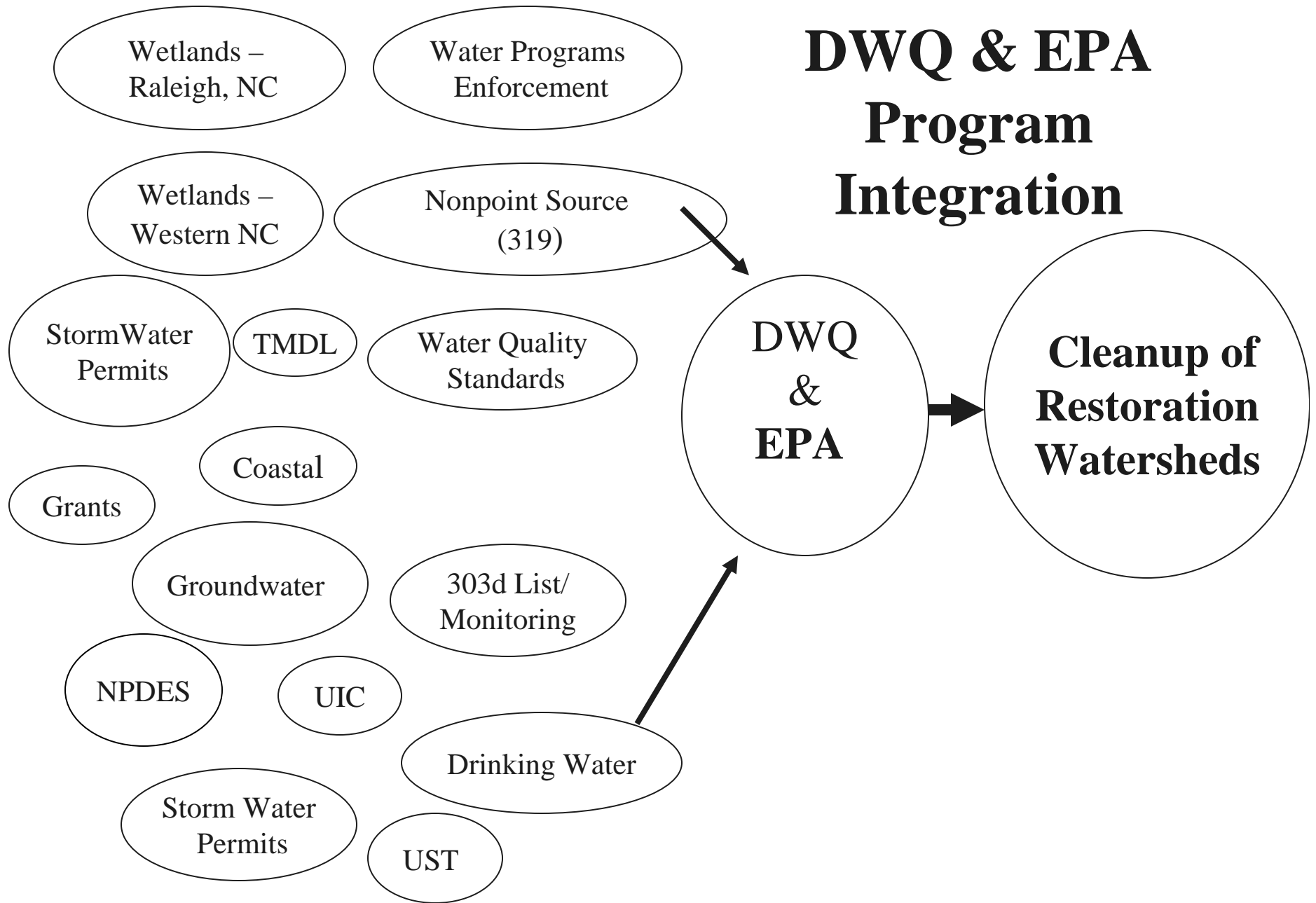
Defining Measurable Results

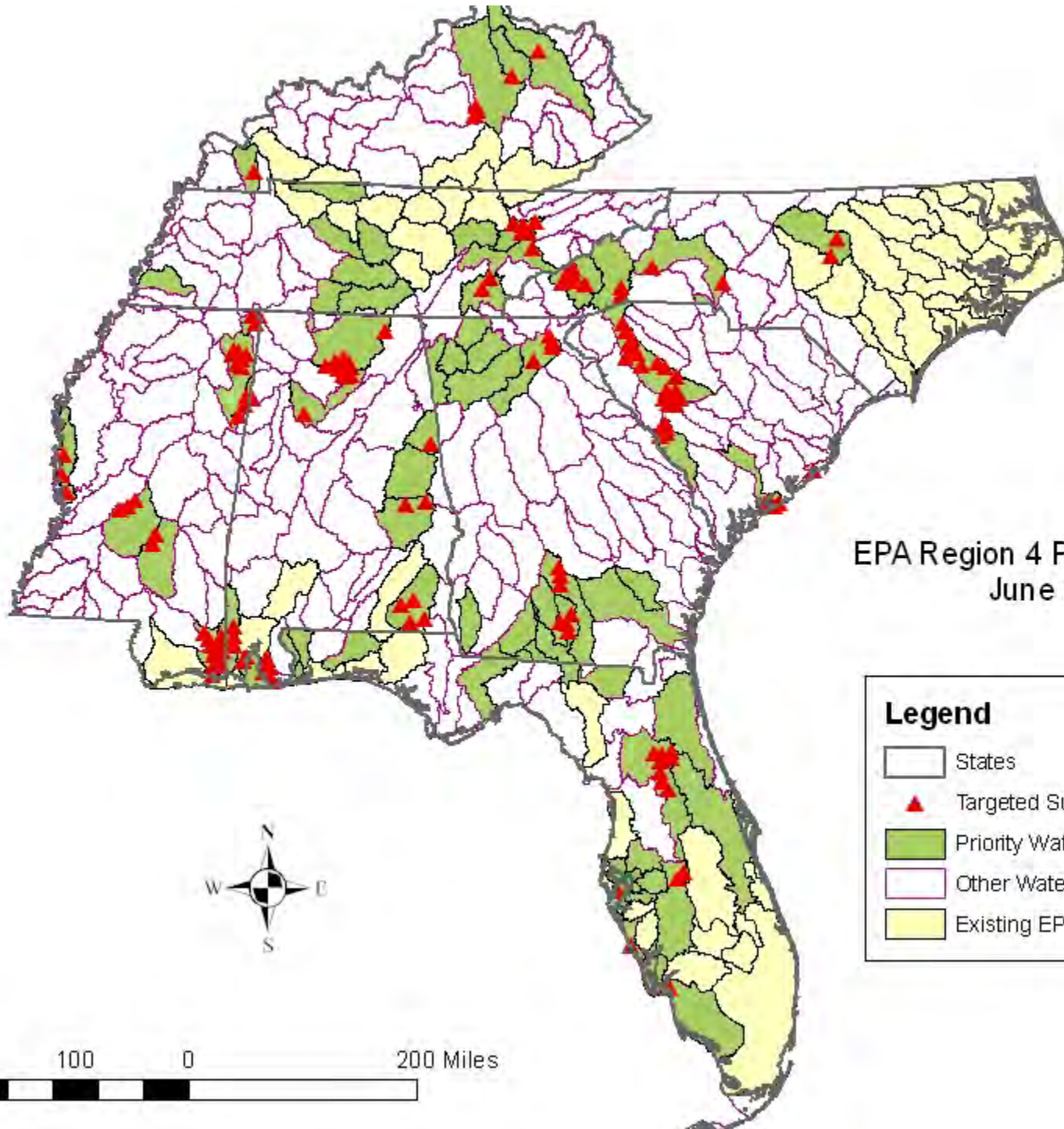
- **Restoration of 303d waters**
- **Removal of pollutants from 303d listings**
- **Instream measured load reductions**
- **Instream measured improvement of biological communities**

PRACTICE
...



DWQ & EPA Program Integration

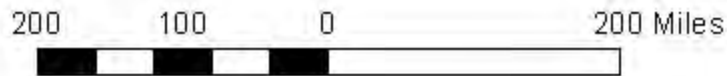




EPA Region 4 Priority Watersheds
June 22, 2006

Legend

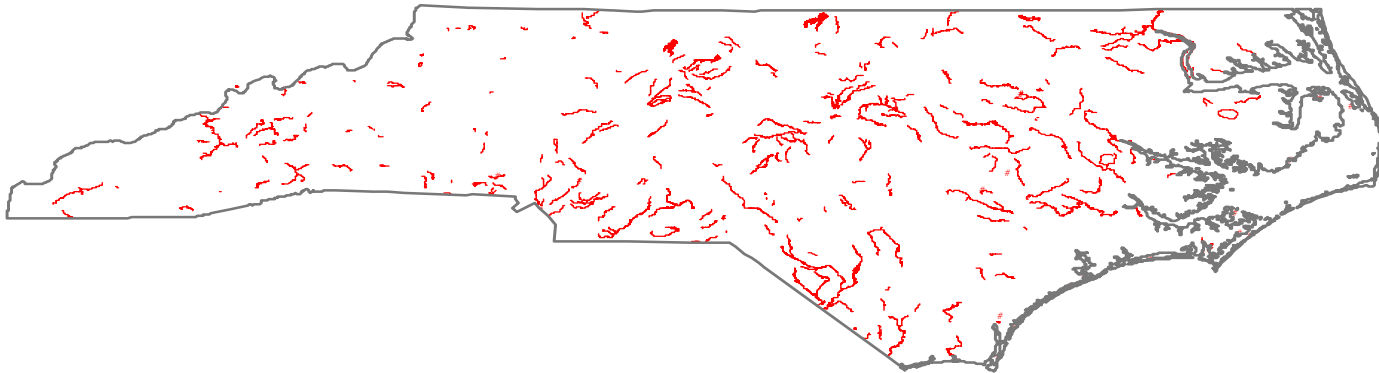
- States
- Targeted Sub-Watershed
- Priority Watershed
- Other Watershed (8-Digit HUC)
- Existing EPA Investment Watershed



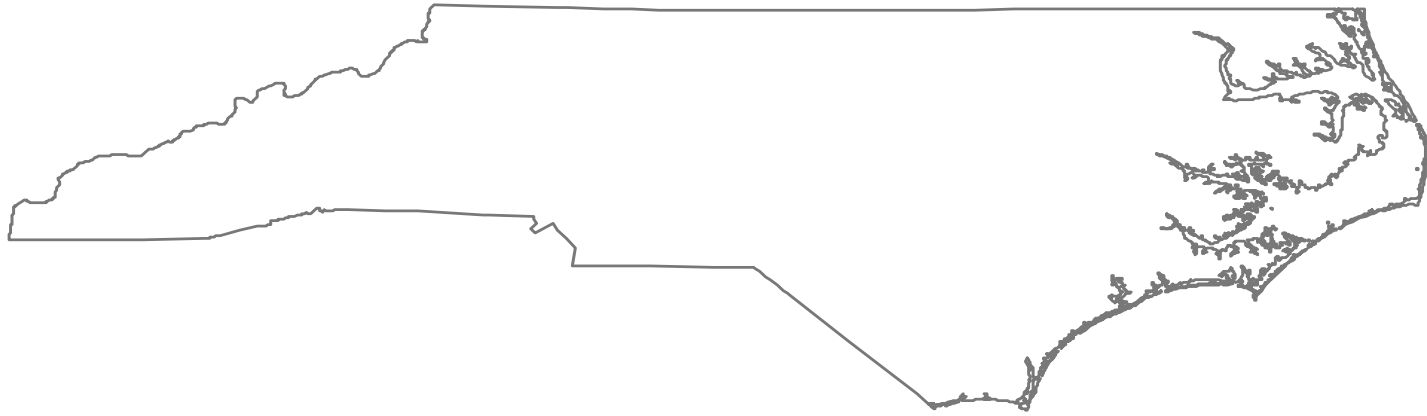
EPA's 8 Watershed Coordinators

Alabama – Chris Plymale	(404) 562–9794
Florida - Frank Baker	(404) 562–9757
Georgia – Stacey Bouma	(404) 562–9392
Kentucky – Andrea Zimmer	(404) 562–9306
Mississippi – Kenneth Dean	(404) 562–9378
North Carolina – Tony Able	(404) 562–9273
South Carolina – Craig Hesterlee	(404) 562–9749
Tennessee – MaryJo Bragan	(404) 562 -8323

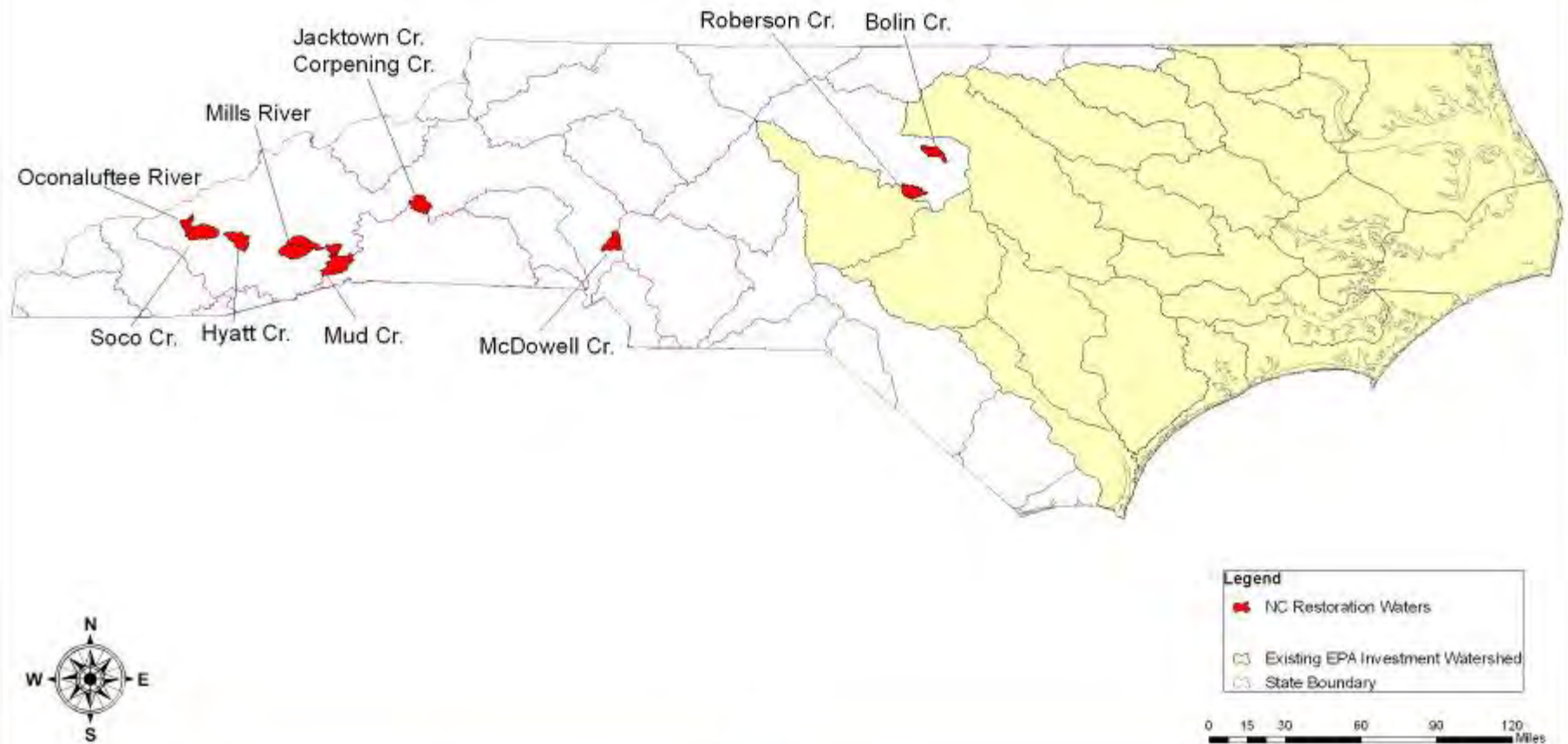
NC 303d Waters



Our Goal



Restoration Watersheds in North Carolina



Map made for: Region IV, Office Of Watershed Management
Map created by: Johnnie Purify
Date: 06/16/2006
Stored Location: T:\Data\ArcGIS Projects\Targeted_Restoration_Watersheds_NS_052306.mxd



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Four Phases of the Watershed Process

- Phase 1 - Explore - Do we agencies engage with this watershed group
- Phase 2 - Build Prepare – Writing Watershed plans and acquiring funding
- Phase 3 – Implement – Implement the watershed plan, install BMPs
- Phase 4 – Transition to maintenance – 303d delisting, protect water quality improvements.

Watershed Management Office - Initiative "Pipeline"

USEPA, Region 4 - Water Management Division

Watershed Management Office

4/13/2006

Initiative	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North Carolina																						
French Broad River Basin - 06010105																						
Hyatt Creek 0201							2	3	3	3	4											
Bat Fork - Mud Creek System 0403							2	2	2	2	3	3	3	3								
Clear (Lewis) Creek - Mud Creek System 0604							2	3	3	3	4	4	4	4								
Upper Mud Creek - Mud Creek System 0403							2	2	2	2	3	3	3	3								
Mills River 0304							4	4	4	4	4	4	4	4								
Brandy Branch 0304							1	2	3	3	3	4	4	4								
Catawba - 03050101																						
Jacktown Creek 0401								2	2	3	3	3	3	4								
Corpening Creek (Youngs Creek) 0401								2	2	3	3	3	3	4								
McDowell Creek 1401								2	3	3	3	3	3	4								
Cape Fear- 0303002																						
Bolin Creek 0603								1	2	3	3	3	3	4								
Roberson Creek 0703								2	3	3	3	3	3	4								
Explore (1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Build/Prepare (2)	0	0	0	0	0	0	0	4	3	2	2	0	0	0	0	0	0	0	0	0	0	0
Implement (3)	0	0	0	0	0	0	0	0	2	3	3	3	2	2	2	0	0	0	0	0	0	0
Transition to Maintenance (4)	0	0	0	0	0	0	0	1	1	1	1	3	3	3	3	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	6	6	6	6	6	5	5	5	0	0	0	0	0	0	0



TVA Service Area

Where TVA Is



Environmental Stewardship & Policy

Mission – to maintain and improve the over 600 hydrologic units in the Valley region. Implementation is based on the following principles:

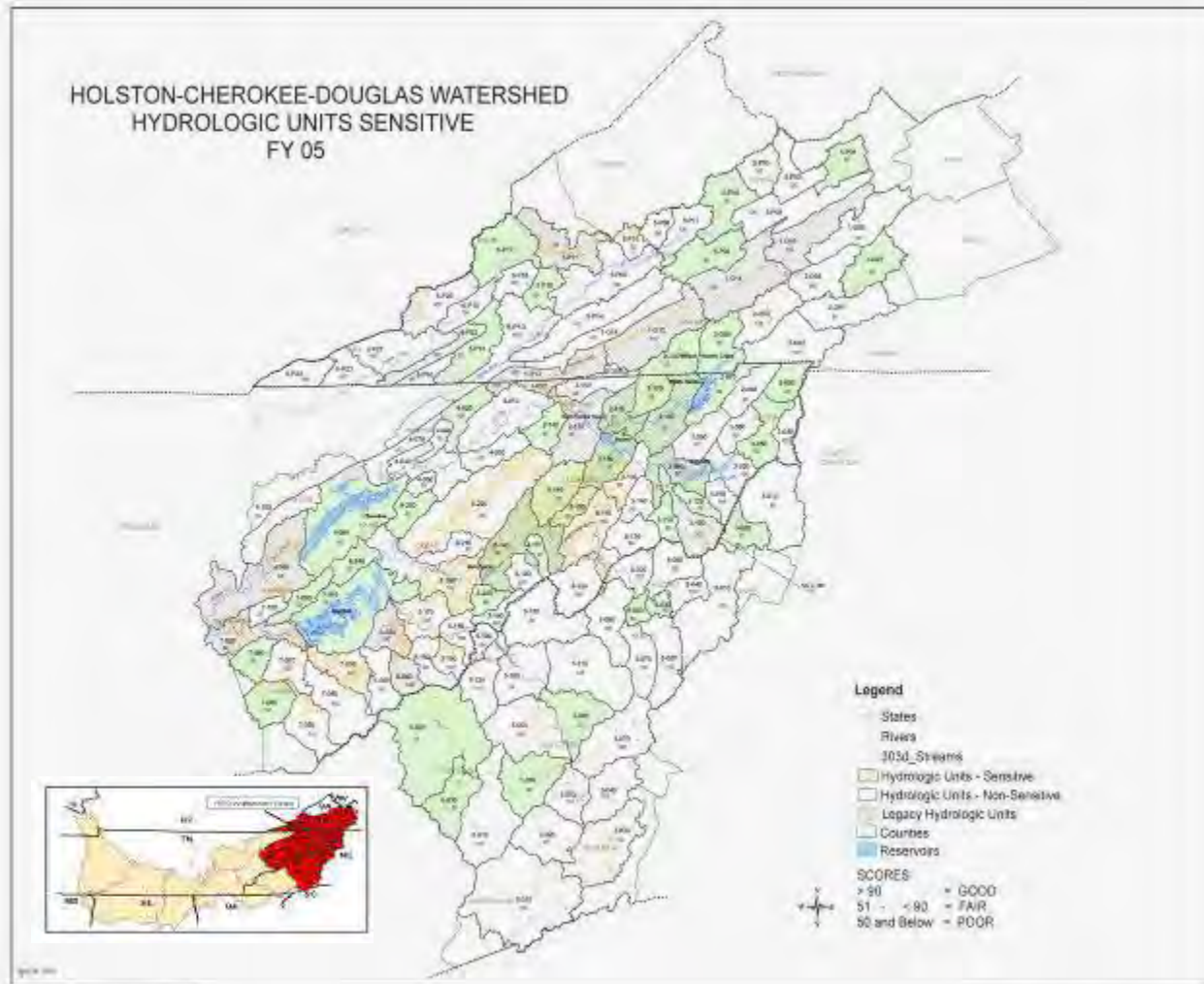
- Foster and commit to partnerships.
- Employ a comprehensive local watershed approach to address resource issues.
- Educate and involve.
- Select projects and allocate resources using the best available data.
- Measure performance by outcomes.



TVA's Approach To Improving Water Quality

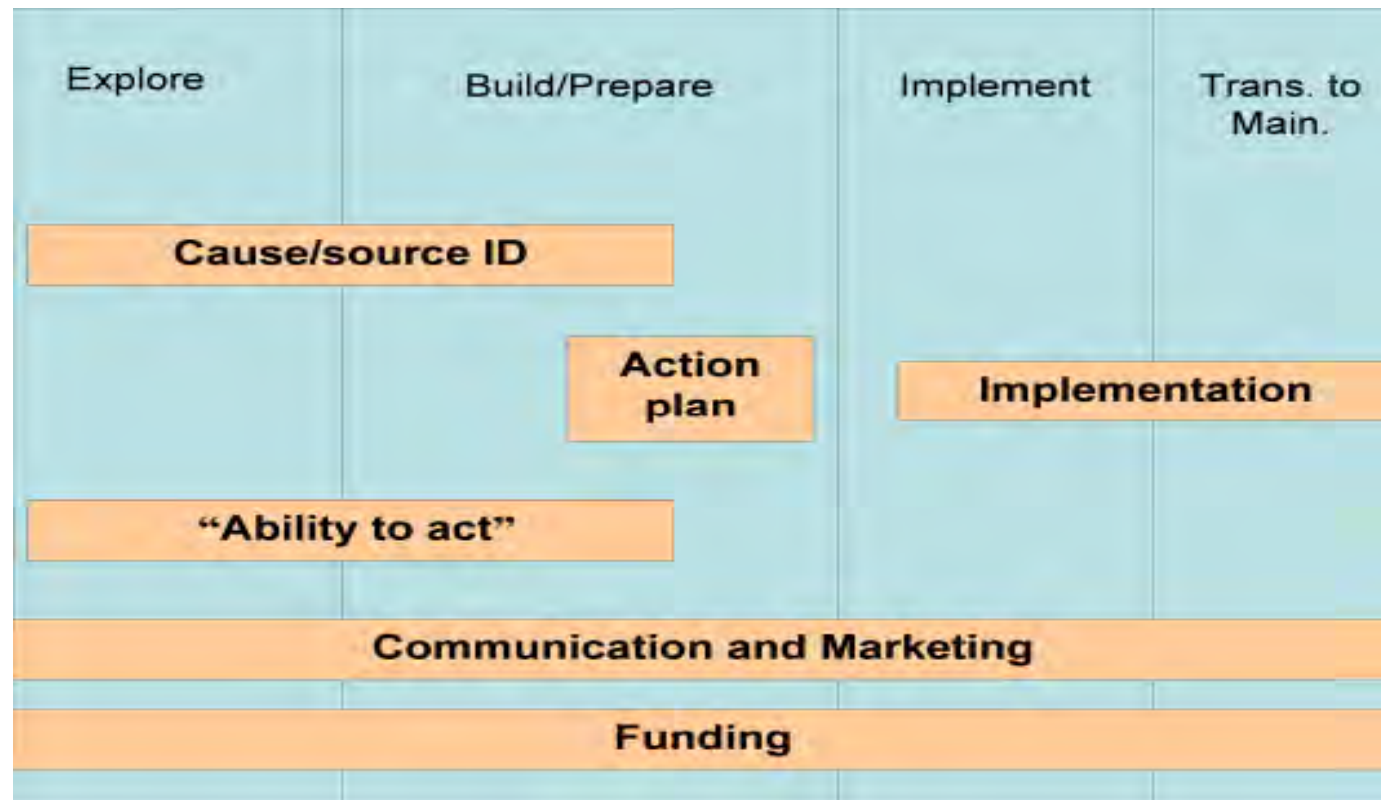
Choosing where to be:

1. Is the HUC listed TVA sensitive (IBI score)?
2. Is there potential for Improvement?
3. Are there partners/coalitions in the area?
4. Is there potential funding available?





Watershed Initiative Structure



TVA & Haywood Waterways Association (Hyatt Creek)

1. Technical Support
2. Support Project Manager Position
3. Haywood County IPSI
4. Implementation Match to 319 (BMP's)
5. Aquatic Monitoring Efforts
6. Outreach (Kids in the Creek)

Partner Example of Cause/Source ID

- **Integrated Pollutant Source Identification (IPSI) for NPS**
 1. Identify Problem Areas (pinpoint)
 2. Quantify Pollutant Source (WAP)
 3. Develop Models (WAP)





Partner Example of Communication / Marketing



- Conservation Camps / Kids In The Creek
- Riparian Giveaway/Workshops
- Growth Readiness
- Stormwater
- Watershed / Water Quality Presentations
- Brochures / Signage



TVA Presence In NC Initiatives

- **Richland/Hyatt Creek**
 - **Mud Creek**
 - Mills River
 - Swannanoa River
 - Ivy River
 - Newfound Creek
 - French Broad River
 - Pigeon River
 - Elk River
 - Madison County
- Projects Include: IPSI's, Watershed Action Plans, Implementation of Watershed Plans, Communication/Outreach Events , Technical Assistance, *Growth Readiness*, etc.

Hyatt Creek Restoration Project

Haywood
Waterways
Association

Haywood Soil
& Water
Conservation
District

Southwestern NC
Resource
Conservation &
Development
Council



Hyatt Creek Restoration Project: Steps

Watershed Action Plan



Hyatt Creek Restoration Group



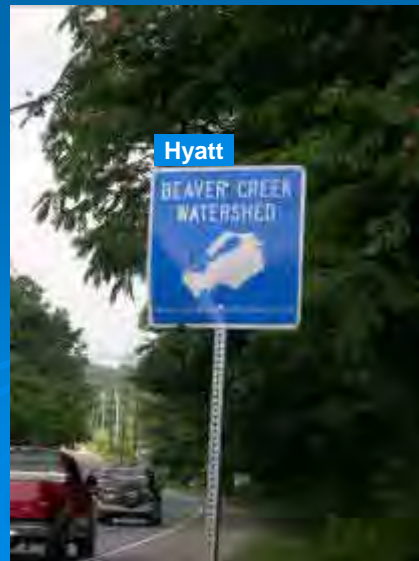
Grant acquisition (319 + Match)

Hyatt Creek Restoration Group

- Haywood Waterways Association
- Haywood Soil & Water Conservation District
- Southwestern NC RC&D Council
- US EPA
- Tennessee Valley Authority
- NC DOT
- USDA Natural Resource Conservation Service
- DENR: DWQ, DEH (WaDE), EEP
- NC Wildlife Resources Commission
- NC State University
- University of Tennessee-Knoxville
- Haywood County Erosion Control Program

Implementation: The Public

- Public meeting
- Press releases
- Watershed signs
- Participant signs

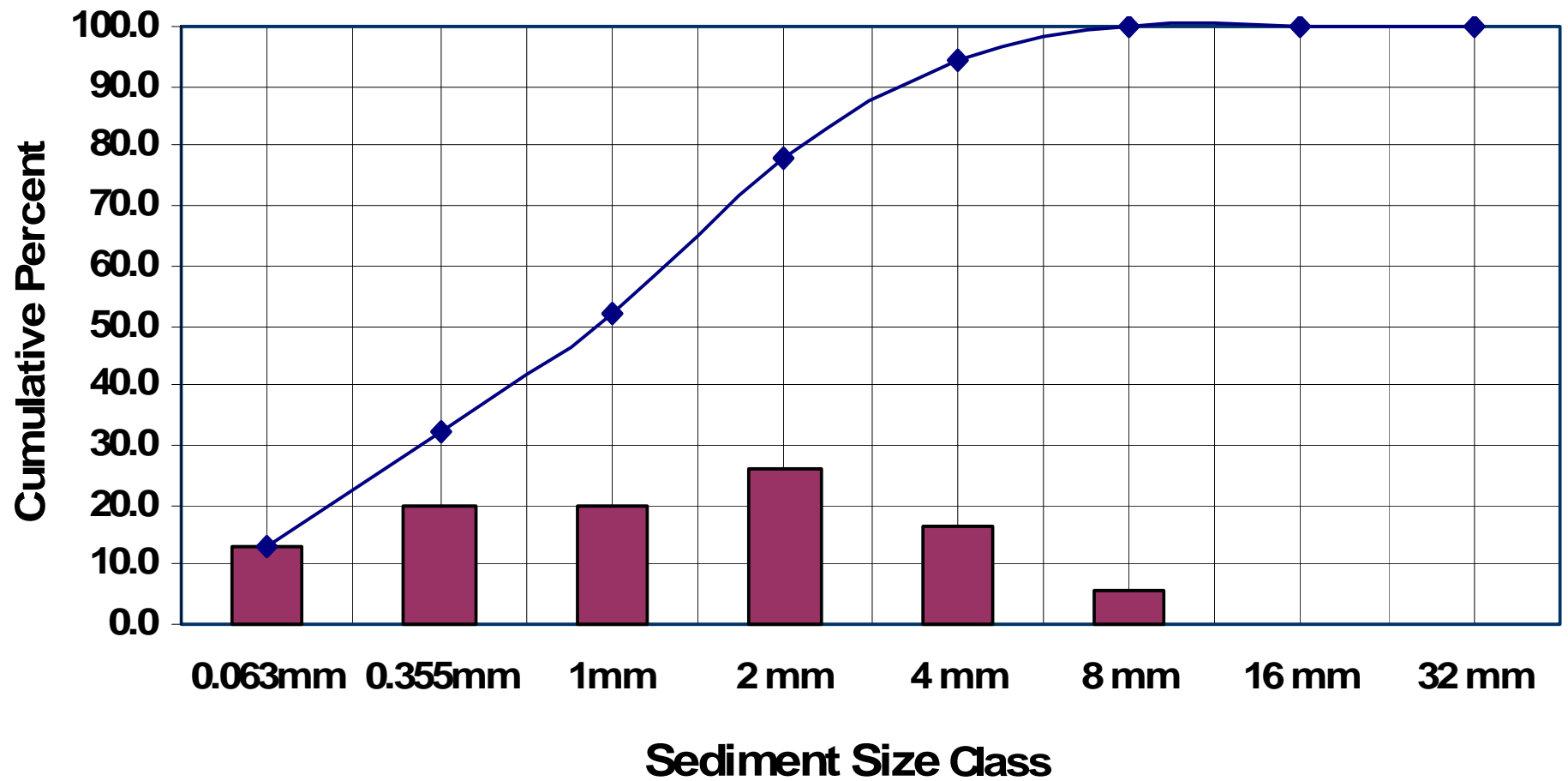


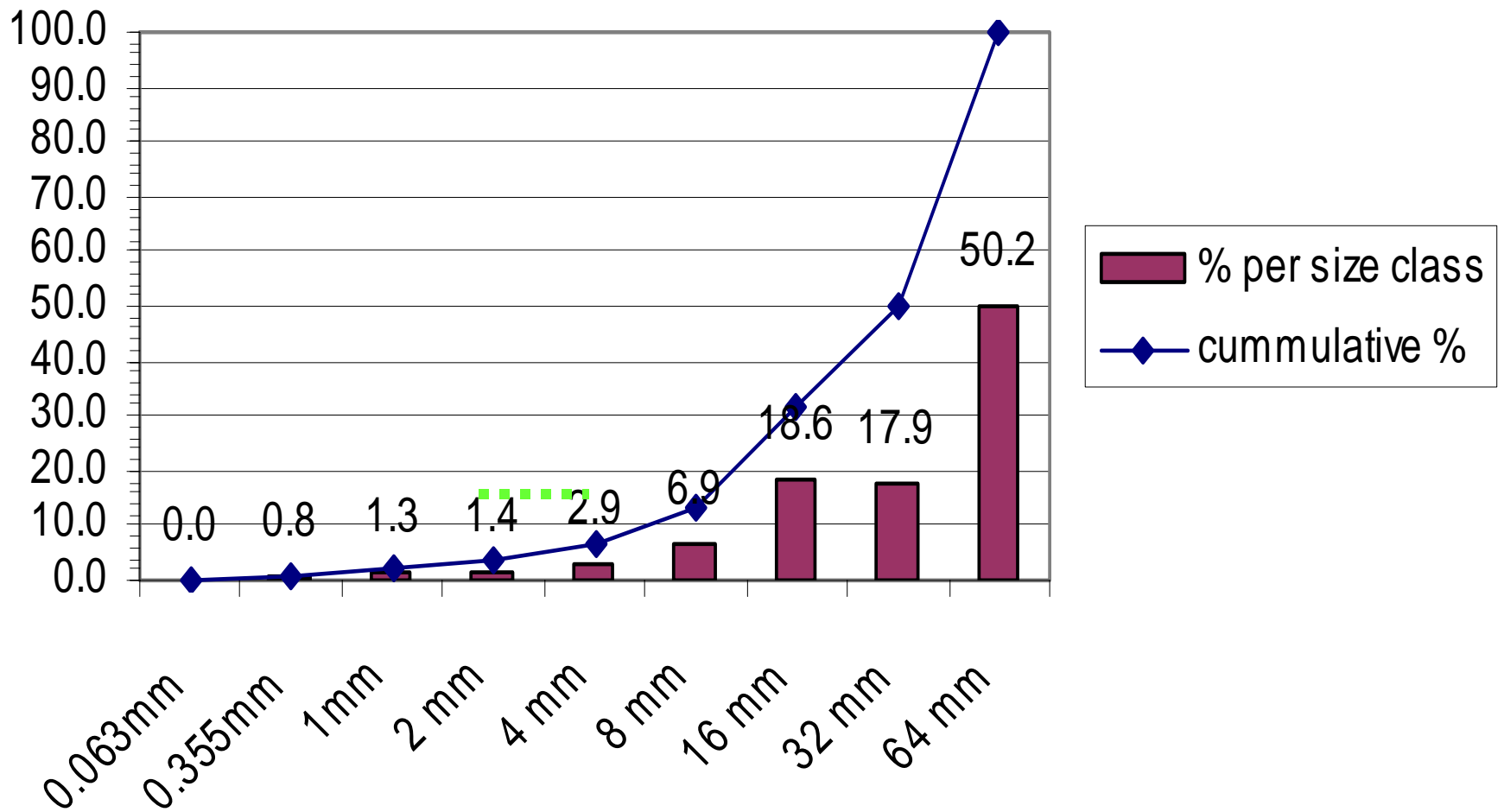
Implementation: Data

- **VWIN** (alkalinity, turbidity, total suspended solids, conductivity, metals, nutrients)
- **Fecal coliform**: 4,900 at confluence!
- **IPSI**: eroding roads and stream banks, loadings
- **Temperature**: too high in May!
- **Fish habitat suitability study**: barriers
- **Sediment**: Pebble counts, substrate sieve, % embeddedness, IPSI, VWIN, single-stage samplers, depth integrated stormwater samples


Sediment

Hyatt Cr. Sieve Strn. DA 50 3/13/2006





Implementation: Projects

- Stream restoration
 - Stormwater and agricultural BMPs
 - Mobile home park package treatment plant
 - Septic systems
 - Growth Readiness / Low Impact Development
 - Culvert improvements
- 





Mud Creek Watershed Restoration Project

Diane Silver
NC State University
Cooperative Extension Service,
Henderson County Center
Mud Creek Watershed Coordinator

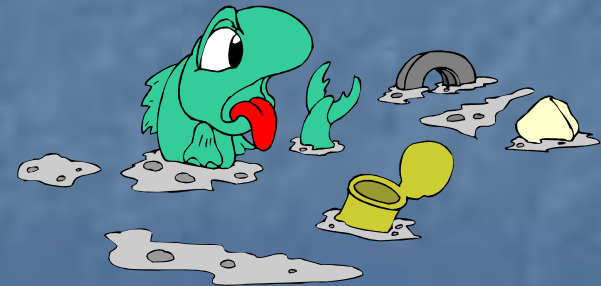
Condition of Mud Creek (and Tributaries)

I) Listed as impaired by NC-DWQ

- Poor health of biological communities – bugs and fish*

II) Class C – secondary recreation, fishing, aquatic life (a few Tr in headwaters)

- most lenient class*
- WQ standards not met – 303-d listed*





1999: Creation of the Mud Creek Watershed Restoration Council

Initiative of LOS Regional COG

Inclusion of ALL possible stakeholders:

- State and Federal agencies involved in WQ
- Local governments within the w-shed
- Non-Profits
- Business community
- Agricultural community
- Development community

Step 1: Scientific Study

I) Division of Water Quality

- Watershed Assessment and Restoration Program (WARP)

II) NC Wetlands Restoration Program (WRP) (now EEP)

- Evaluation of stream sites for restoration

III) TVA – subcontractor to WRP

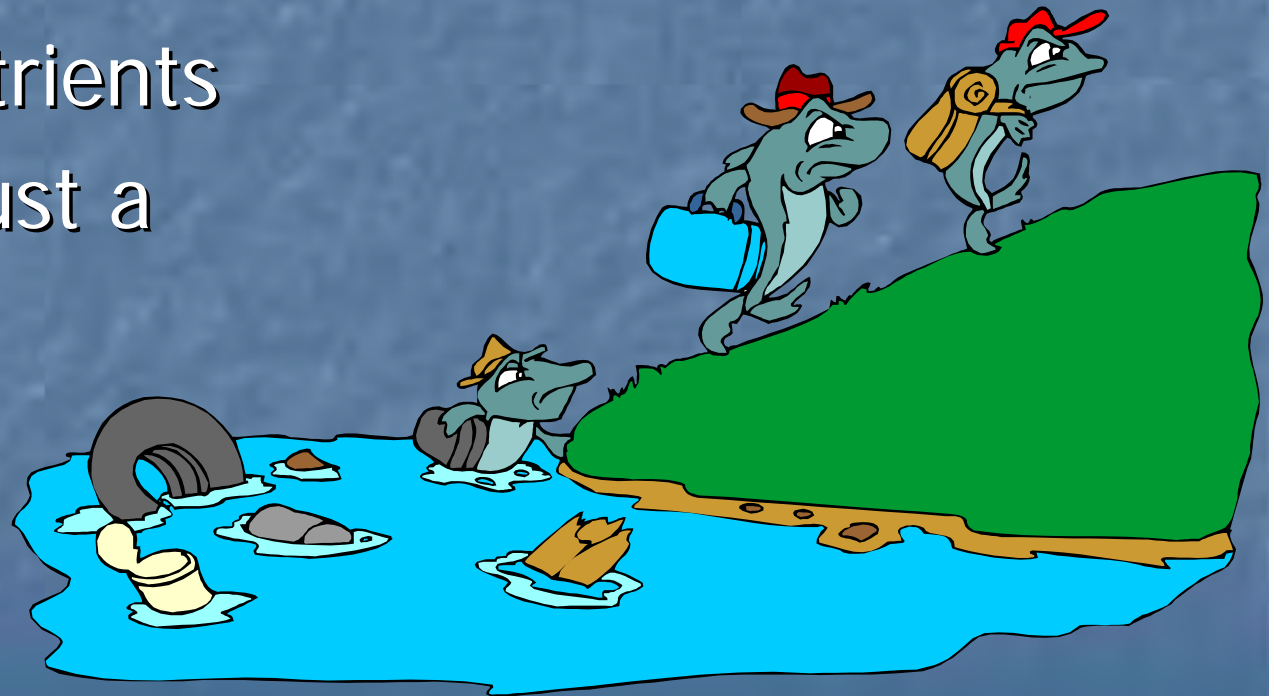
- IPSI
- aerial photography & mapping

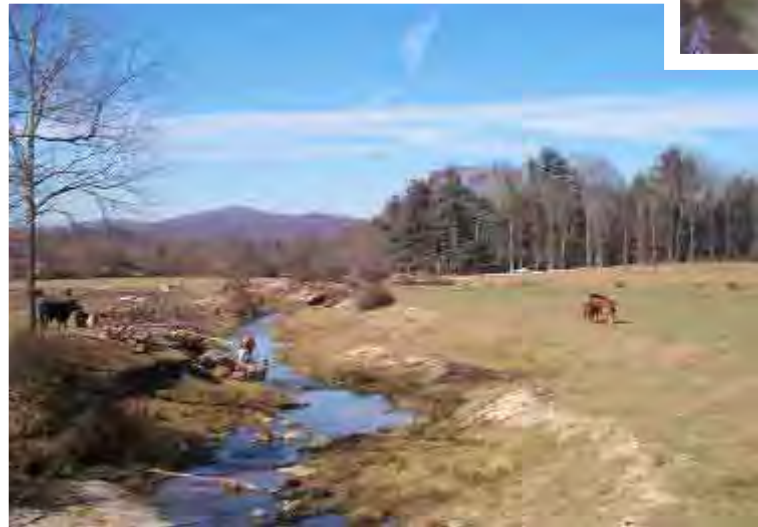
IV) UNCA Volunteer Water Information Network (VWIN): 5 sites – 9 years; 3 sites – 3 years



PROBLEMS/ CAUSES of DEGRADATION

- Sedimentation & Erosion
- Excessive Nutrients
- Pathogens (just a little)
- Toxicity
- (Solid Waste)





Step 2: Strategic Plan 2003

Synthesis of all the studies.

4-Prong Approach:

- Stormwater
- Non-point Source Pollution from Agricultural Activities
- Habitat Degradation
- Upland Sources of Sedimentation

Step 3: EDUCATION

Initial grant funding from DWQ, TVA, Duke power to hire Watershed coordinator.

Public education re:

- General awareness

 - Where is Mud Creek

 - Did you know it's in trouble?

 - General value of WQ

 - Project goals

- Stormwater

- Importance of buffers

- Solicit willing landowners for buffers, BMPs, conservation easements – funnel to existing programs at SWCD, NRCS, CMLS, EEP.

Step 4: On-the-Ground -- Lewis Creek Project

- Focus on one sub-watershed – effort to achieve measurable improvement
- Grant funding to tailor projects to address the barriers identified

Additional Initiatives

Future Plans

- Continued projects in addtl. subwatersheds – need to address sediment from developed areas
- Stream Dr. program
- Urban Cost-Share program
- Kids in the Creek
- Continued education, media presence, assistance to Phase II communities

A banner image showing a wide, green field in the foreground with a line of trees and mountains in the distance under a blue sky. The text 'MILLS RIVER WATERSHED PROTECTION PROJECT' is overlaid in green, and a smaller line of text below it reads 'Helping landowners improve their land and improve water quality'.

MILLS RIVER WATERSHED PROTECTION PROJECT

Helping landowners improve their land and improve water quality

Partnerships at Work in a Small Watershed

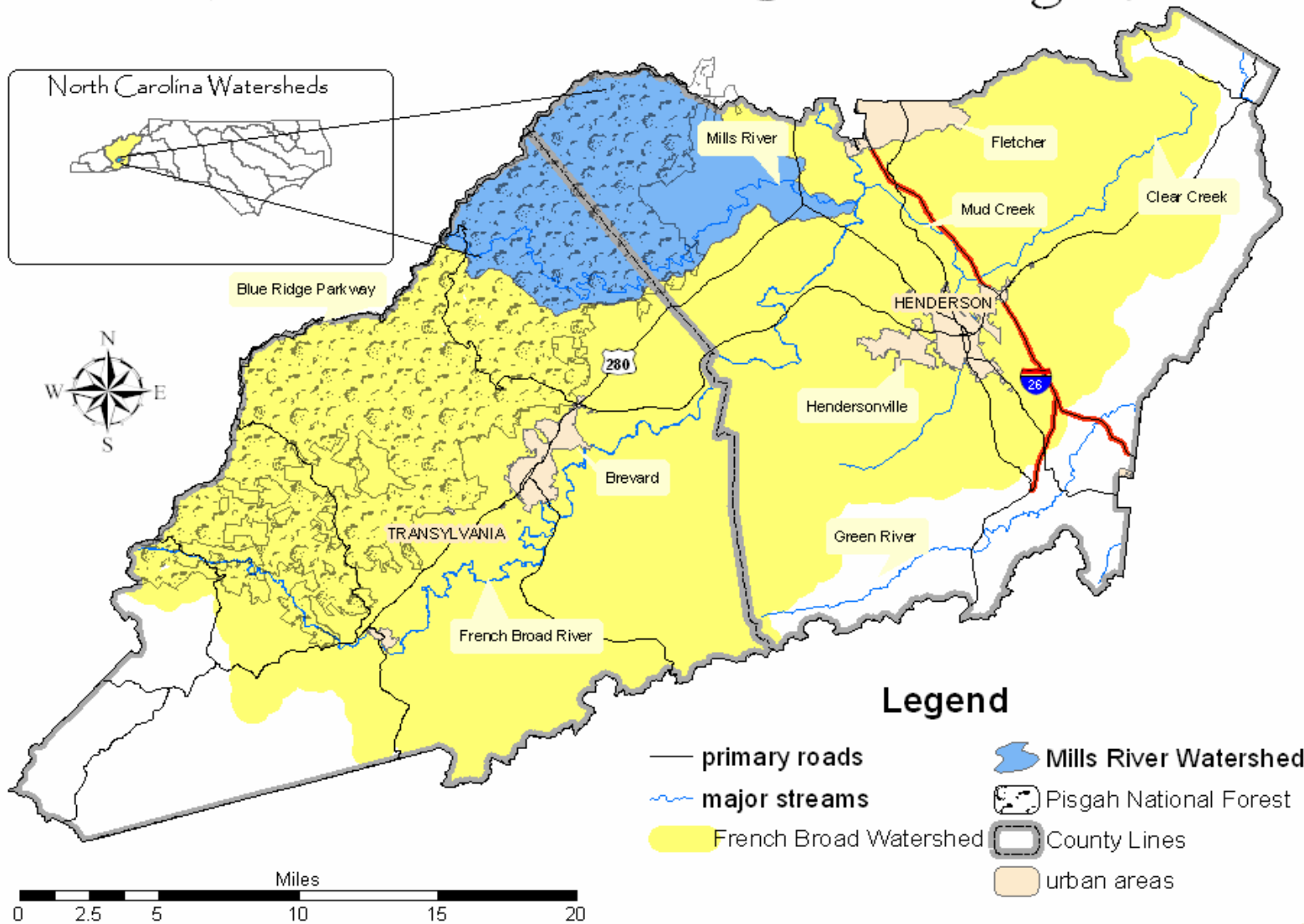
Shaun Moore

Project Coordinator

Henderson County SWCD

Mills River Partnership

Mills River Watershed and Surrounding Area



Probable Cause of Impairment



EPT Sampling Data

<u>Year</u>	<u>EPT</u>	<u>State Assessment</u>
1998	2	Poor
2001	6	Poor



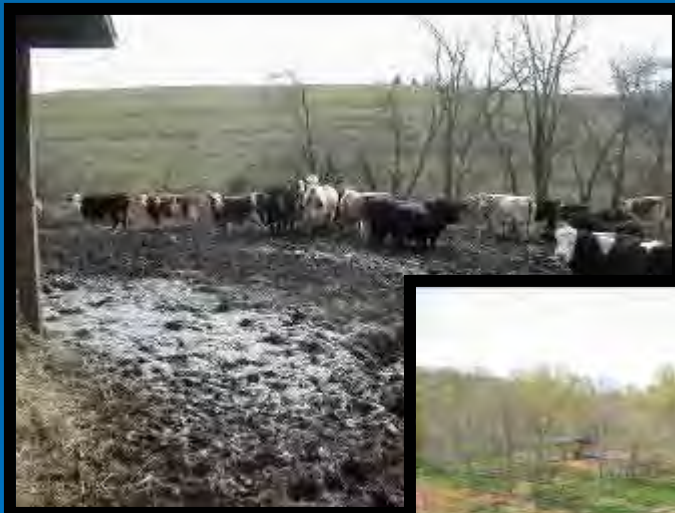
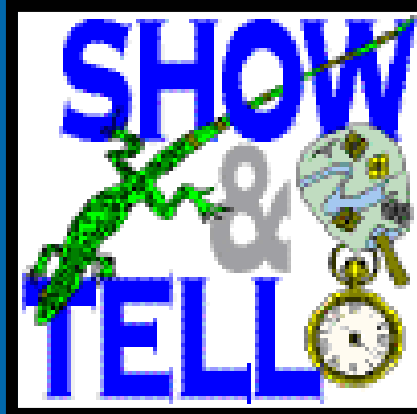
Original Mills River Partnership

Henderson County Soil & Water
Natural Resources Conservation Service
Carolina Mountain Land Conservancy
Regional Water Authority
Land-of-Sky Regional Council of Governments
US Forest Service
City of Hendersonville
Henderson County
City of Asheville
Trout Unlimited



Projects

Develop and Document a Restoration Plan




- Buffers
- Revetments
- Streambank Restoration
 - Stormwater Ponds
 - Bioretention Cell
- Cropland Conversion

EPT Sampling Data

<u>Year</u>	<u>EPT</u>	<u>State Assessment Rating</u>
1998	2	Poor
2001	6	Poor
2002	28	Good-Fair
2005	25	Good-Fair

New Partnerships

- Home owners in housing developments
 - New residents
 - Flood plain land owners
 - The new Town of Mills River
 - Farmers
- 

The Projects Future

- Entering Maintenance Phase of Project
 - Educate new residents
 - Maintain presence in community
 - Monitor project sites and water quality

Henderson County hopes to find funding to allow us to replicate our success to other impaired watersheds throughout the county.

Restoration Watershed
Champions Receive DWQ and EPA Support

Potential Restoration Watershed List
Recommended by Partners

Local Watershed Groups and
Local Governments Across NC



Primary Questions

- What will it take to clean up this water?
- How does DWQ, EPA and partners assist with the resources to make it happen?

Partners and Champions



- Champion - local watershed group, local government, soil, and water district, etc – takes lead on restoration watershed effort.
- Partner – empower, assist, etc. champions.

Existing Restoration Watersheds Process

Partners



DWQ and EPA

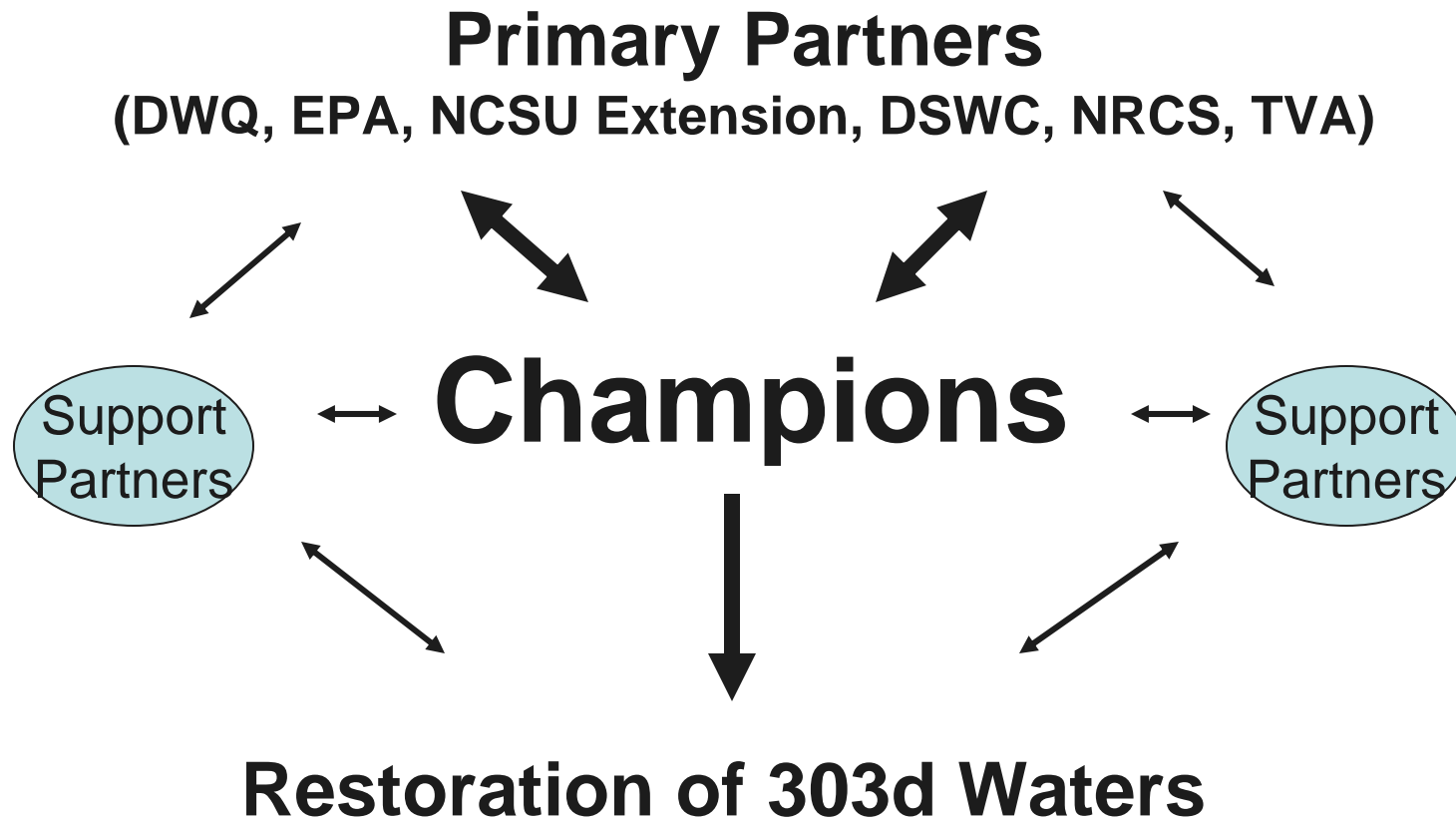


Champions



Restoration of 303d Waters

Partnerships Supporting Restoration of Impaired Waters



**Primary
Partners**

**Regularly at
table with
Champions**

**Support
Partners**

**Awareness
and
Opportunities**

Operating Goals for Restoration Watershed Program

- **We are looking for restoration and protection**
 - **We are looking for local champions**
 - **We want to empower those local champions**
 - **We want to build a number of skilled local restoration teams**
 - **We want to cultivate local restoration teams across the state**