

Rocky River/Tick Creek Watersheds Situation Assessment

October 2009 Final Report



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Executive Summary

Watershed Education for Communities and Officials (WECO), a NC Cooperative Extension program housed in the NCSU Department of Agricultural and Resource Economics, received a U.S. EPA grant in partnership with other NCSU Departments and local organizations to work on restoring and protecting resources of the Rocky River watershed, which is in the Cape Fear River basin. The project proposed convening a collaborative Rocky River watershed management effort, while focusing restoration efforts on Tick Creek, a major tributary within the Rocky River watershed that is rated as impaired by the State and Federal governments. WECO conducted a situation assessment to determine whether a collaborative process might benefit the situation, and to identify stakeholders and issues of importance to stakeholders. This involved interviewing stakeholders who represented a range of interests in the Rocky River watershed.

Issues of concern raised by those interviewed included protecting endangered and threatened aquatic species, reducing nitrogen pollution in the Rocky River from a variety of urban and rural sources, impacts of seasonal and drought induced low flows in the Rocky and its tributaries, ensuring adequate drinking water supply and quality, public access to the river for recreation, maintaining agricultural uses and minimizing impacts to water resources, supporting economic development and viability of businesses, conflict over Siler City's wastewater treatment plant permit, and deep-rooted conflict across sectors of Chatham County.

A geographic disconnect between upstream and downstream users (in this case Western and Eastern Chatham County) is compounded by a focus on positions that has prevented some stakeholders from communicating productively enough to understand each other's interests. Understanding other stakeholders' interests is the basis for collaborative problem-solving. Despite this disconnect, we heard almost unanimously that stakeholders across the various interests and geography want to hold a conversation so they can find common ground to work on together. We believe that common ground is possible, in particular because all stakeholders interviewed were contributing in some manner towards protection of water resources, and were interested in discussions.

We recommend using this EPA-funded project to provide opportunities for increased communication and understanding of each others issues. We recommend forming a collaborative effort focused on protecting and restoring the Tick Creek watershed, setting the possibility of a Rocky River level collaborative effort on hold while we focus on smaller, more manageable outcomes. Our specific recommendations for this project are included in the following categories: 1) facilitate communication and education; 2) engage in joint fact-finding; 3) convene a Tick Creek collaborative effort; 4) reframe the issues around the Rocky River, and 5) meet participant needs through principled negotiation. Our recommendations are primarily targeted towards our project partners, but most can be applied towards Rocky River stakeholders in general.

I. Introduction

About the Rocky River Watershed

The Rocky River and the land that drains to it are located almost entirely within Chatham County with small headwater portions in both Alamance and Randolph Counties. The Towns of Liberty and Staley (both Alamance County) are partially within the watershed. The Town of Siler City (Chatham County) is almost wholly located within the watershed. The watershed is dissected by highways US 64, US 421, and NC 902. The Rocky River watershed includes the drainage areas of Love's, Meadow, Tick, Greenbriar, Nick, Landrum, Harland's (Holland's), Varnell, Harts, and Bear Creeks.

The Rocky River is home to a federally endangered fish species called the Cape Fear shiner (*Notropis mekistocholas*), and *Harperella (Ptilimnium nodosuma)* a federally endangered aquatic plant found only in Granville and Chatham Counties in NC. The US Fish and Wildlife Service is responsible for monitoring, conservation, and recovery of the Cape Fear shiner other endangered species. The shiner was put on the endangered species list in 1987. Found in portions of Chatham, Harnett, Lee, Moore, and Randolph counties, it occurs in the main stream reaches of and tributaries to the Deep, Haw, and Cape Fear Rivers with the largest populations around the confluence of the Rocky and Deep Rivers. In the Rocky River it is no longer found above Woody's Mill Dam. According to wildlife professionals, the river could currently support the species. Current levels of nutrients are not considered harmful to the shiner. Studies show the shiner is not as sensitive to environmental change as trout, but is more sensitive than bass.

Tick and Love's Creeks are listed on the state's 303(d) list as biologically impaired. The State of NC is required by the US Environmental Protection Agency (EPA) to put all water bodies that are not meeting their intended uses on this list. The 2005 NC Division of Water Quality Cape Fear Basinwide Plan indicates habitat degradation from multiple sources: agriculture, impervious surfaces, pasture, and National Pollutant Discharge Elimination System (NPDES) Permit sources. NPDES program regulates point sources that discharge pollutants into waters of the United States.

Most of the watershed is forested, with extensive pastureland as well. Development has occurred along the US 64 corridor between Siler City and Pittsboro. Population is expected to grow by 110,000 people in counties with portions or all of their areas in this subbasin by 2020 (NCDWQ 2005). Two impoundments located along the Rocky River within the LWP study area serve as the drinking water supply for Siler City and some surrounding unincorporated rural communities.

Purpose

This situation assessment is part of a larger project, the *Collaborative restoration and protection of high quality resources in Tick Creek and Rocky River watersheds*. The project is managed by North Carolina State University (NCSU), and funded by a US Environmental Protection Agency (EPA) grant.

The purpose of the situation assessment is to help determine whether a collaborative process might be beneficial for the situation. Can the parties seek a negotiated agreement? Will a collaborative process reduce the conflict, and if so, who should be involved, what are the issues, and how could a process be

structured? The results of the situation assessment helps to determine a public involvement process to best meet stakeholder needs while creating a sustainable watershed management team.

This report intends to:

- identify issues of importance to the local community,
- identify organizations and individuals, who can influence watershed decisions or are influenced by watershed decisions,
- determine how best to bring diverse interested stakeholders together,
- begin the process of learning about and understanding individuals' interests, and
- assist technical partners in addressing research questions that concern the stakeholders.

This report does not intend to provide a quantitative, statistically accurate analysis of the issues, but rather a summary of the issues identified. The summary is followed by our interpretation of the stakeholder interests identified, and recommendations for the project team and watershed stakeholders that may offer the most effective course for meeting those multiple interests.

What do we mean by collaboration?

Collaboration is a process of shared decision-making in which all the parties with a stake in a problem constructively explore their differences and develop a joint strategy for action.

- Scott London, *Collaboration and Community*

The EPA grant was received through the NC Division of Water Quality Section 319 Non Point Source Grant Program. Section 319 refers to the US Clean Water Act. Non Point Source (NPS) refers to any pollution that does not have a discreet source, such as stormwater or agricultural runoff. Watershed Education for Communities and Officials (WECO), a NC Cooperative Extension program housed in the NCSU Department of Agricultural and Resource Economics, received this grant in partnership with local organizations. The project timeline is winter 2009 - winter 2011, and involves two components, with most of the resources directed to the latter:

1. convene and coordinate a collaborative Rocky River watershed effort
2. focus immediate restoration efforts on Tick Creek

II. Methods

Stakeholders were identified through a snowball sampling method, which relies on referrals from initial subjects to generate additional subjects. Initial subjects included known stakeholders who have been actively involved with Rocky River issues. We interviewed twenty eight (28) stakeholders including residents, developers, businesses, non-profits, and government staff, representing a cross-section of interests. For example, the team did not speak to every resident identified, but tried to interview people from throughout the watershed.

All but three interviews were conducted in person, either at the Chatham County Agricultural Building in Pittsboro, or at the interviewee's home or place of work. Three interviews were conducted by phone. Interviews lasted from 40-60 minutes, with one of us taking notes in the face-to-face interviews while the other conducted the interview. We used a set of questions (see Appendix A) for guidance during the interviews.

Answers from the interviews were grouped by question and topic for review. We then summarized those answers in our "Results" section without attributing any specific comments to particular people. The analysis is not intended to be a statistically accurate quantitative report. Rather, we sought to summarize the range of issues raised by people. If more than one person raised the issue, we reflected that in our report, but we did not quantify how many people raised the issue.

We then responded to the information that we gathered with our own analysis of the situation in the "Discussion" section, and provided our recommendations. Our recommendations are based on our own experience in collaborative watershed planning, informed by the resources in the "References" section.

Stakeholder interests represented in the interviews, and the number of people interviewed from each interest group is listed in the following table. The number of people interviewed adds up to more than 28 because people interviewed often represented more than one interest group. For example, somebody who is a resident of Tick Creek is also a resident of Rocky River watershed, and Chatham County, and may be a resident of Siler City. This may be a conservative account of Chatham County and Rocky River residents, because a few people who worked in Chatham County or the Rocky River did not indicate whether or not they also lived there.

Interest group represented by interviewee	Number interviewed
Agri-business	2
Chatham County staff	3
Chatham County livestock Association	3
Chatham County resident	17
Chatham Soil and Water Conservation District	2
Chatham Economic Development Corporation	1
NC Cooperative Extension, Chatham County	2
Community advocate	1
Developer	1
Division of Water Resource, NCDENR	1
Farmer	4
Friends of the Rocky River/ Rocky River Heritage Foundation	5
Division of Water Quality, NCDENR	3
Ecosystem Enhancement Program, NCDENR	1
Wildlife Resources Commission, NCDENR	1
Randolph County resident	1

Rocky River corridor landowner	5
Rocky River watershed resident	12
Siler City resident	5
Tick Creek watershed resident or landowner	2
Town of Liberty staff	1
Triangle Land Conservancy	1
US Fish and Wildlife Service	2

III. Results: What we heard

How do respondents view the watershed?

“The Rocky River is like a fading beauty that could be given a facelift if we do it soon enough, otherwise it could fade away.”

-a riverfront landowner

The watershed was recognized by interview respondents as serving many purposes for its residents. Many mentioned it is a water supply source, both for municipal surface water and municipal and private wells. Wastewater disposal through permitted sources into the Rocky River as well as permitted spray fields on land were uses discussed by many.

Interviewees discussed agricultural and commercial uses that were supported by the land and water to farms and businesses. Some mentioned that it provides recreation for fishermen and a source of scenic beauty to residents. Many mentioned that the watershed provides habitat to wide range of aquatic species, including some that are considered endangered.

When asked to describe the Rocky River, people responded with many views. Some felt it was special and unlike any other river, while others felt it was just like any other river. Everyone interviewed agreed they would like it to be clean and useable. Some think the Rocky is healthier than other rivers, while some feel it is much worse than available tests have shown. Many people agreed they would not swim in it, or eat the fish from it.

Stakeholders

This section identifies the major stakeholder groups with interests in the watershed, though surprisingly few respondents recognized that stakeholders include more than those directly living on the river or actively involved with protecting the river.

Residents

Residents of the Rocky River watershed, including residents of Siler City, Bonlee, Goldstein, Liberty, Silk Hope, and Chatham, Randolph, and Alamance Counties all have interests in the watershed. Some

interests expressed include property values, farming, business, health and well being, recreation, and spiritual interests.

Nongovernment organizations

The *Friends of the Rocky River (FORR)* and the *Rocky River Heritage Foundation (RRHF)* are noted as raising important issues and helping get people to public meetings in times of crisis. They share the missions of protecting the resources of the Rocky River. Many respondents mentioned FORR when asked about groups with an interest in the watershed.

FORR is a 501(C)4 Educational & Lobbying nonprofit, while the partner RRHF is a 501(c)3 Educational & Research Nonprofit Organization. Boards overlap but are not identical. Officers of FORR are automatically on RRHF.

The *Chatham County Livestock Association* (representing poultry, cattle, and other livestock farm operators) was mentioned by most Siler City residents and agricultural stakeholders as a good conduit to the agricultural community.

Triangle Land Conservancy (TLC) was mentioned by a few respondents as an active stakeholder. TLC is a non-profit organization dedicated to protecting natural and working lands (agriculture and silviculture) in Chatham County.

Chatham Conservation Partnership (CCP) is a cooperating group of public and private entities, whose goal is to develop and implement strategies that build awareness, protection and stewardship of Chatham County's natural resources. Many respondents were aware of the CCP's work and spoke positively about it.

The Rocky River Management Team is a group coordinated by the NC Division of Water Quality by order of the Environmental Management Commission in response to Siler City's required permit for their reservoir expansion. This team is tasked with making recommendations to NC DWQ on water quality issues in the Rocky River related to the reservoir and release pulses of water from the reservoir.

Some nonprofits mentioned by interviewees but with whom we were unable to conduct interviews include Chatham Citizens for Responsible Development, Friends of Mt Vernon Springs, El Vinculo Hispano, and the NC Rural Communities Assistance Project.

Commercial Interests

A variety of industrial and commercial interests exist in the watershed, including agricultural operations, furniture industries, material processing industries (steel, plastic) as well as some retail establishments that are mostly concentrated in Siler City. Poultry and swine processing plants, hatcheries, beef cattle, organic livestock and produce farms, and supporting businesses are all found in the Rocky River watershed. Additionally, the Towns of Liberty and Siler city support numerous commercial and nonprofit organizations in their urban centers, including arts-based small businesses in the N.C. Arts Incubator in Siler City.

Government

As in many rural counties, local agency and government staff live in the communities where they work, and are well known among their neighbors. Those whom we interviewed felt like they are walking a careful line between upstream and downstream users, recognizing the validity of the various interests. Although we interviewed residents and businesses in Siler City, Siler City government staff were advised by their legal counsel not to participate due to a pending legal appeal of the wastewater treatment plant permit.

Government agencies with the authority to make decisions to affect the Rocky River watershed or have resources to benefit the watershed include:

Federal agencies

- US Environmental Protection Agency (EPA)
- US Fish and Wildlife Service (USFWS)

State agencies within NC Department of Environment and Natural Resources (NCDENR)

- NC Division of Water Quality, NCDENR (DWQ)
- NC Division of Water Resources, NCDENR (DWR)
- NC Ecosystem Enhancement Program, NCDENR (EEP)
- NC Wildlife Resources Commission (WRC)
- NC Division of Forest Resources

County governments or agencies

- Chatham County
- Alamance County
- Randolph County
- Town of Siler City
- Town of Liberty
- Town of Staley
- Soil and Water Conservation Districts (SWCD)
- NC Cooperative Extension County Centers

When we asked interviewees who they believed had the authority to make decisions regarding the watershed, we heard a broad range of responses. Some felt decisions were best left up to federal and state governing bodies, and/or local governments, while others pointed out that each landowner makes decisions that impact water quality. Local governments were often recognized as having the authority to make land use and zoning decisions that impact water resources. Some said that each voter can work to elect local officials who will represent their interests.

Issues

In this section we summarize issues of concern and interest that were raised by people interviewed.

Species

Many respondents were concerned that aquatic species populations could be faltering, including mussels, a federally endangered fish species called the Cape Fear shiner (*Notropis mekistocholas*), and Harperella (*Ptilimnium nodosuma*) a federally endangered aquatic plant found only in Granville and Chatham Counties in NC. According to wildlife professionals interviewed, the river could currently support the species since current levels of nutrients are not considered harmful to the shiner. The Endangered Species Act (ESA) brings USFWS and other resources to the area, though it was noted unlikely by authorities that the ESA could serve as a lever for increased water quality controls. Rather, they highlighted the ability to leverage financial resources and federal agency staff time is more likely.

Some respondents suggested stocking Cape Fear shiners above the current dams, and/or removing dams as ways to recover populations. One wildlife professional noted that research on costs and benefits is required when considering dam removal. Respondents were interested in protecting natural areas where native species can and do live.

Pollution / Nutrients / Algae

Concerns were voiced about high levels of nutrients and also resulting algal growth in the river. Many residents and NCDWQ interviewees noted excessive aquatic algae growing on the main stem river bottom (though not free floating in the water). Nutrients cause this growth to increase. The watershed was mentioned by many as highly affected by nutrients from all sources: agricultural, municipal, residential. Potential sources of increased levels of pollutants and nutrients cited include cattle accessing creeks, poultry plants, Siler City's wastewater treatment plant, land application of sludge, urban stormwater runoff, agricultural runoff, and timber removal. The NC Division of Water Quality does not have a standard for how much Nitrogen is allowed in the Rocky River. A water body can be classified by NCDWQ as Nutrient Sensitive Waters (NSW), which requires more stringent water quality protections than those currently applied to the Rocky River. River advocates are exploring the possibility of having the Rocky River reclassified as NSW. The NCDWQ does have a chlorophyll standard for algae that is suspended in the water column. In 2010, the upper reservoir that provides water supply for Siler City will be added to the next 303(d) list of impaired waters due to exceeding the chlorophyll standard.

Agricultural professionals noted that cropland and related agricultural erosion problems have improved in the watershed. They attribute this improvement to a conversion from cropland to forest, pasture (an untilled use), and poultry production. Forestry that adheres to best management practices was noted as one of the cleanest uses of the land.

An agricultural professional explained that research from NCSU Dept. of Soil Science found that Chatham County soils in the adjacent Jordan Lake basin are nutrient deficient, and farmers in the area are not using enough nutrients to meet recommended agricultural rates. A suggested solution was to

use additional nutrients to to achieve the recommended soil test rating). The interviewee was assuming that farmers were likely using similar practices in the Rocky River basin.

Low flows

People seemed universally concerned about the impacts and causes of low flow in both the Rocky River and Tick Creek. Droughts cause low flows, but blame was also placed on: the reservoirs, development, stormwater management, lack of infiltration into groundwater, large water users, and transportation projects. A few respondents mentioned that Mineral Creek and Tick Creek have lower or no flow and blamed this on the hydrologic disconnection that occurred with the 421 bypass. A long-time resident attributed low flow to a disruption of a spring that supplies Mineral Creek. The resident recollected that NCDOT had offered to build spring protection structures, but that this did not happen. He said that Mineral Creek used to never stop flowing, but since the bypass was constructed it does not flow continuously.

Access / recreation

Many residents lamented that there is little if any public access to the river. Private landowners along the river can access it. Suggestions for access included near bridges and the County business park located on the Rocky River in Siler City. Some of the interviewees said they only think about the river when they see it through their windshield while driving over it on a bridge. River advocates express concern that if residents don't experience it, they don't see a need to protect it. Some riverfront landowners mentioned the responsibility of government to provide the public access to state waters. One riverfront property owner was concerned about odors, presumably concerned that odors may impede enjoyment of the river.

Agriculture and Silviculture

Most people interviewed recognized that the Rocky River watershed is largely rural. An agricultural professional is concerned that blame for pollution was assigned, without cause, to the agricultural community. Some farms do allow livestock access to the creek for water. This was mentioned as a worry-free system for the farmer, but causes bank erosion and instability as well as reducing the integrity of streamside buffers. Agricultural and natural resource agencies help farmers fence the cattle out of streams and provide alternate watering sources (wells). One farmer who fenced out his cattle commented that they were healthier after switching to a cleaner water source.

The entire watershed has been farmed for many years. It was noted that although much of Tick Creek is agricultural, there is also residential runoff pollution and it would be helpful if local natural resource agencies and their funds were used to address urban runoff.

Some noted that many agricultural landowners in Chatham County are "land rich and cash poor", with many farmers working in jobs off the farm to earn extra income. Although agriculture and agribusiness industries account for 38% of Chatham County's income based on the 2000 census data, some said the county overall has poor soil, with poultry litter enabling farming to occur by providing an inexpensive fertilizer that improves soil quality.

A farmer we interviewed was concerned about his farming being economically and environmentally viable. Several agricultural representatives expressed a desire to maintain the rural character and the ability to farm. Some mentioned that many small organic and niche farms in the watershed mean an economic opportunity for locally produced food and trees, and that the locavore movement is helping support these small farms in Chatham County. A winery is also found in the watershed. A citizen worried that hard economic times would lead to landowners cutting more timber to survive, while an agricultural professional stated “anytime you can make money from the land with agriculture or forestry, instead of building houses, you’re probably doing a good job”.

Development

Both residents and government staff explained that while development is not an issue today, speculators are buying land for future development. Some mentioned a high potential for expanding residential development from nearby larger municipalities and workforce centers (Raleigh, Durham, Chapel Hill, and Greensboro). With development comes runoff, use of water for drinking supply, and a need for disposing of treated wastewater, all of which impact the river. Another potential land use change mentioned was a plan for the ISP mine in western Chatham County. The company did not move there, but the conflicts surrounding this issue were mentioned numerous times. Some mentioned property rights issues as a source of conflict everywhere in the area.

Stormwater education and management was discussed as a need for residential properties. One person mentioned that upcoming bridge replacements over Tick Creek may bring about opportunities for education and improvement.

Economic

Respondents from many different interest groups commented on the difficult state of the economy and slowdown of development. Several recognized the impact of job losses on Siler City (jobs have been lost from Pilgrim’s Pride, Joan Fabrics, Nationwide Homes, and others), and financial difficulties Siler City is experiencing. Chatham County’s strategic plan for economic development targets clean, renewable, biotech, knowledge-based businesses and industries. The Chatham County Economic Development Corporation (EDC) works with local government and partner organizations on improving the economic well-being and quality of life for Chatham County. The EDC is facilitating discussions with these partner organizations, working with the UNC Center for Competitive Technologies, marketing for businesses and has applied for Golden Leaf Foundation funds to better plan for leveraging Siler City and Chatham County resources. Several respondents suggested that the river offers economic development opportunities, for a source of water, and as a scenic and recreational amenity to help attract businesses.

Social/historical issues

Respondents mentioned the historical significance of Mount Vernon Springs and how people used to visit the springs because they believed the waters would heal them of ailments. Hispanic and African American communities were mentioned as populations that should be considered. One wildlife

professional mentioned the need to be sensitive to societal needs and impacts that their management decisions have on humans, as well as animals.

Drinking water supply

Many people interviewed expressed concern about the need for adequate drinking water supplies for western Chatham County, which comes mostly from the reservoirs on the Rocky River built by Siler City, and wells that tap into groundwater. In particular, people were concerned about water availability or Siler City residents and businesses during times of future drought. Memories of the severe impacts from the most recent drought are fresh in some Siler City and Chatham County residents' minds. An upstream user expressed strong interest in doing all that is possible to maintain a high quality water supply to downstream users, stating that "Rocky River is a lifeline for Siler City."

NPDES Permit

In this section, we consulted public records to clarify the NPDES permit issue that some interviewees discussed. According to the NCDWQ Cape Fear Basinwide Plan (2005), there are four NPDES (National Pollutant Discharge Elimination System) permitted dischargers in the Rocky River. One of these is the Siler City wastewater treatment plant (WWTP), which flows into Loves Creek, which then flows into the Rocky River. Before a permit can be issued, a draft is written and sent for public review. In the case of the WWTP, there were enough comments about this permit to warrant a public hearing, where people can verbalize their concerns. The public hearing officer then takes comments and makes recommendations about whether changes should be made to permit. A permit was issued August 29th, 2008 and expires Oct 31, 2011. (Permits are for 5 year intervals- the WWTP permit was up for renewal in 2006, and took 2 years to go through the hearing and final permit process). When a permit is issued, there are a certain number of days to file an appeal, after which time an appeal cannot be filed.

Friends of Rocky River contested the permit by way of an appeal. The appeal states the permit (1) does not meet the water quality standards for best use of waters, (2) does not protect and preserve the downstream existing uses, and (3) does not address the discharge from Siler City WWTP in relation to the cumulative and secondary impacts of other pollutants. The appeal cites nutrient loading and toxicity problems in the river. The appeal asks that Siler City be required to join a study of secondary and cumulative impacts

DWQ said that nitrogen requirements desired by the FORR for the permit were not possible since current water quality standards do not require this for managing nitrogen. DWQ staff commented on their responsibility to be consistent throughout the state concerning how they apply standards to permitted parties.

Deep-rooted conflict

The disagreement and legal action over the wastewater treatment plant is at the forefront of Rocky River conflicts, but most respondents mentioned long standing conflicts in the area, including historical, social, and economic issues. In the late 90's a conflict concerned hog farms, rights-of-way, and a potential intensive livestock ordinance. The issue went to litigation, resulting in anger and resentment

among numerous parties. The citizen advocacy group, Chatham Citizens for Responsible Development was mentioned as being formed at that time. Other sources of conflict mentioned include: an east-west divide, the loss of jobs in Siler City, the loss of county decision-making power in Siler City, the selection of Pittsboro over Siler City for the location of Chatham Community College, outsiders moving to Eastern Chatham County, race relations, current political affiliations, and an historical precedent for conflict dating back to northern abolitionist sympathizers living in Siler City during the Civil War. Most people interviewed said they want a conversation to occur between all parties, but a few raised concerns about accusations and assumptions that are tossed around. We heard from various stakeholders that environmental groups blame farmers and government, agricultural interests blame environmentalists and developers, and there is little consideration of the loss of jobs in Siler City. Regardless of these various views, some respondents expressed a desire to see stakeholders from the various groups come together and find solutions that are fair to all parties.

Current local initiatives

Many initiatives are taking place within the watershed that relate to water resources. Respondents told us about the following. There are likely other initiatives that are occurring that were not captured through our interviews.

Chatham County:

- Land Use Plan text
- Voluntary Agricultural District
- Environmental Review Board (ERB)
 - Makes recommendations to elected officials (supporting classification of Rocky River as Nutrient Sensitive Waters , requiring landowners adjacent to sludge spray fields be notified for example)
- Ordinances and regulations including: conservation-development, water supply, floodplain, buffer regulations.
- A working lands/farmland protection plan is in process.

Municipalities

- Liberty Business Park is looking to expand
- Siler City has riparian buffer and water supply watershed regulations.

Private companies and nonprofits

- *Chatham County Economic Development Corporation*
 - Facilitating discussions among local governments and other organizations
- *Friends of Rocky River* - has appealed the Siler City WWTP permit, advocates for greater river protection

- *Rocky River Heritage Foundation*- is seeking funding for Rocky River monitoring, educational efforts, is a lead partner on river corridor conservation planning

Natural resource agencies

- *Chatham Conservation Partnership* -seeks funding to develop a conservation plan for the County to protect water quality and natural resources, and facilitates collaborative discussions
- *Chatham County Cooperative Extension Center*- provides research-based information to citizens through educational programs, publications, and events.
- *Chatham Soil and Water Conservation District*-provides technical and educational services to land users, had cost sharing resources for agricultural and urban BMPs
- *Natural Resource Conservation Service*- works with SWCD to provide technical services and cost sharing for agricultural landowners
- *NC Wildlife Resources Commission*- completed a NC Wildlife Action Plan relates to the wildlife found in the Rocky River basin, including the Cape Fear shiner.
- *Triangle Land Conservancy*
 - leading a Rocky River corridor conservation project funded by NC Clean Water Management Trust Fund.
 - Owns land and conservation easements in the watershed, seeks to work with additional landowners for increasing conservation near White Pines, and other areas.
- *Rocky River Management Team*- formed as a requirement for Siler City reservoir expansion permit. The team include NCDENR natural resource agency representatives, river advocates, Chatham County and Siler City. The team monitors pulse releases from reservoir.
- *NCDWQ* is investigating nitrogen standards for wastewater treatment plants in NC.
- *NC Ecosystem Enhancement Program*
 - Sponsored a local watershed planning process for most of the Rocky River Basin, resulting in recommendations for specific restoration projects and other actions in 2005. Funding for implementing projects may be available in the future through NCEEP
 - Monitors a stream restoration site completed for NCDOT in Tick Creek in 2006.

People interviewed also suggested looking at methods used by other watershed initiatives that they consider successful. These included the Haw River Assembly, Robeson Creek Watershed Council, Deep River efforts, and the Eno River Association.

Stakeholders' ideas for solutions

"We need small incremental process to keep it going. We can all work together on one project at a time, to help keep the ball rolling, protecting the water and building collaboration at the same time."

-an agricultural professional

Many respondents were interested in maintaining or improving the Rocky River's status as a high quality resource and amenity, for providing public recreation, drinking water supply, cultural enrichment, enjoyment, and sense of place. People expressed interest in doing their part to keep the river healthy - fencing livestock out of the creeks, educating residential landowners and farmers about pollution

prevention, keeping their operation's effluent lower than required, getting people together to talk, providing state funds for restoration projects, and protecting land through conservation easements.

We heard almost unanimously that stakeholders across the various interests want a conversation to occur, to find the common ground between all parties and work from there. Two examples of people working together surfaced in interviews. The Chatham Conservation Partnership was mentioned as a great example of collaboration, though one respondent hoped to see more effort made to involve western Chatham County interests. The Chatham County Economic Development Corporation's efforts was another example of diverse interests collaborating on issues of common interest. Regarding collaboration, one person mentioned the need to coordinate among the various plans related to natural resources in the County.

People want to understand the cause and the source of the impairment in Tick Creek, and to understand whether the Rocky River is impaired. Several mentioned the importance of continued discussions and research.

Improvements desired include improved aquatic habitat, erosion control, and water quality. Specific ways to reach those improvements that were suggested included additional conservation easements along the river to protect riparian buffers, reduced nitrogen inputs, best management practices, restoration, land use planning, better enforcement of existing regulations, and increased political will to implement plans.

Ideas for education

The need for education about a range of topics for a range of audiences was raised by many. Some suggested partners who could help reach certain audiences, and methods for raising awareness.

Target audiences and the messages suggested for each include youth, landowners (about best management practices), newcomers (about working lands), local government officials, and community groups (about the Rocky River and this project). Potential partners for reaching these audiences included 4H, the boy scouts, and schools, the Voluntary Agriculture District (VAD) which notifies new land owners about presence of farming, Chatham Community College, and the Towns of Siler City and Liberty.

One method for raising awareness was suggested by both residents and government staff- install high profile best management practices to educate citizens and landowners about what can be done on the ground, and to illustrate participants' commitment to protecting water quality. Several suggested using some funding from this grant project to implement a project. Areas suggested included the county business park in Siler City, or in the Town of Liberty. Additional suggestions for BMPs included focusing more resources on BMPs instead of litigation, and involving corporate partners.

Using technology, such as an online map of the watershed, and publicizing economic data on the costs of current development practices were other techniques suggested.

Data needs

Many respondents wanted to see more data to support decision making. NCSU is currently developing a list of available information and data needs.

Three ambient monitoring stations are operated on the Rocky River; one is maintained by DWQ and entered into an EPA database (called the Storet system) and two are maintained by the Upper Cape Fear River Basin Assembly. Sources of existing water quality and quantity data mentioned include DWQ, EEP, USFWS, the Upper Cape Fear Basin Association, and a US Geological Service (USGS) station. Additional ambient monitoring stations were proposed, though NCDWQ commented on a limited ability to staff additional stations. Participants suggested the current data, including the EEP report be made available in a more readily accessible format. Collecting GIS map data, including land use was suggested.

When asked what information to collect to determine the health of the Rocky River and Tick Creek, respondent's answers ranged from the general "water quality data" to the specific, for example "residual chlorine". It was suggested that baseline data would help get everyone on the same page, so conversation could occur and also help with long term monitoring. Interviewees suggested the need for more "hardcore data" and facts rather than opinions about the water quality. Respondents generally felt the need to determine where pollutants were coming from.

Information on the following items was suggested: dissolved oxygen, flows, nutrients, nitrates, nitrites, residual chlorine, phosphorous, ammonia, metals, fertilizers, pesticides, biological data (including insects, fish, invertebrates, mussels, algae, and protected plant and animal species such *Harperella* and Cape Fear shiner.)

Numerous participants mentioned the need to monitor tributaries to the Rocky, including Tick Creek. Other suggestions included scouting the watershed for illicit discharges and nonpoint sources, buffer integrity, erosion, bank stability, and conducting groundwater monitoring, especially in light of sludge application. Finally, it was suggested a monitoring plan be developed, even if there is currently not money available to implement it.

Respondents use the following sources for learning about environmental issues:

Newspaper (Chatham Record, Herald Sun, News and Observer)
 NCDENR/DWQ public reports, permits, staff
 Chatham Environmental Review Board
 RRHF and FORR
 Chatham Coalition
 Cooperative Extension
 From people calling for help
 NC Rural Water Association
 Word of mouth
 Conservation organizations (Haw River Assembly, Sierra Club)
 Chatham SWCD
 Local government employees
 Chatham chat list
 Agribusiness council meeting
 County Livestock Association meeting
 Rocky River Management Team
 Chatham EDC meetings

Communication and collaboration

Participants were asked to rate the level of communication and collaboration between parties in the Rocky River Basin on a scale of 1 through 5, with 5 being the highest level possible, and 1 being the lowest. Collaboration was defined as working with other parties towards achieving common goals. Twenty three respondents provided ratings. Those who gave a range of two numbers, for example 2 to 3, we averaged to get one number (in this example 2.5).

Communication ratings

Participants characterized the level of communication with an average rating of 2.3. NCDWQ and NCDWR respondents gave higher scores than average, and referred to the structured opportunities provided for input, such as public hearings and the Rocky River Management group. A few respondents qualified that the level of communication depends on the parties, saying that some parties have communication structures between them (for example the FORR and the Chatham BOC), and pointed out that others do not (for example river advocates and the farming community). Several of those who provided low scores provided comments on their perceptions: low trust due to attorney involvement; a lack of a medium for basinwide/countywide communication; people are talking at but not listening to each other. One respondent commented that it is "much like a boxing match, not friendly conversation".

Collaboration ratings

Participants characterized the level of collaboration with an average rating for all scores of 1.8. Several respondents asked if they could say zero. Only two respondents gave scores higher than 3, no respondents gave a 5. Respondents who gave higher than the average score explained why: the Chatham Conservation Partners have high levels of collaboration; some groups like the Cattlemen Association and Siler City collaborate. Those who provided low scores provided some explanations: people haven't tried to hear the opinions of others; people want to use the river for different things; there is a lot of mistrust, bad faith, and the assumption of evil; collaboration between east and west Chatham County is not happening.

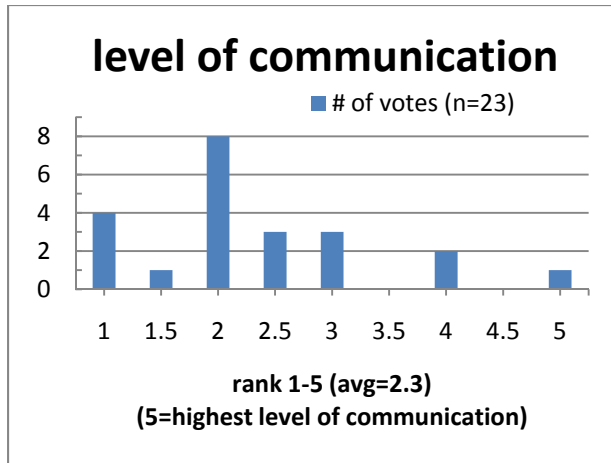


Figure 1: Level of communication responses

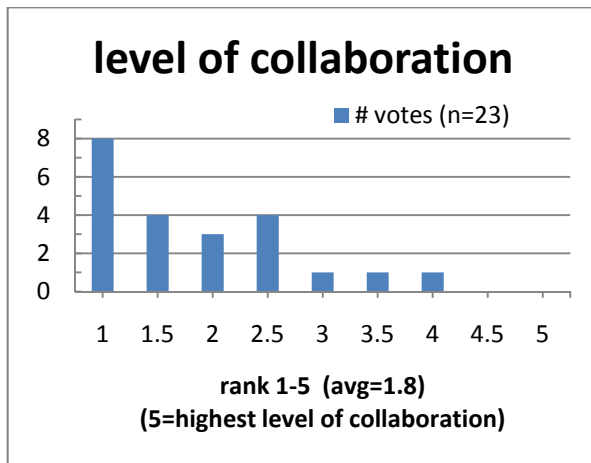


Figure 2: Level of collaboration responses

Desire for and benefits of increased communication

Respondents unanimously thought increased communication and collaboration would be preferable to the current situation. They also felt a basin wide collaborative process is a good idea and many thought it could work. Many expressed a desire to sit down together and speak to one another, to share their interests, and learn others’ interests.

Respondents want a way to share information, learn about one another and their interests and develop a vision and goals for the watershed together. Many felt it was important to learn about each other’s values and needs, to help them understand their neighbors in the watershed, and their unique perspectives, and to uncover their shared values. An example mentioned was *“many people don’t understand agriculture and farmers, their needs and their work.”* One said it would be a big step toward people realizing they may already have common goals. Benefits mentioned by numerous respondents

include the leveraging and sharing of resources, and building awareness of mutual needs, water quality issues and the river in general.

Some felt collaboration could occur only if common goals could be determined; while others said collaborating would allow them to find common goals, and to understand impacts of decisions on participants. People are ready to focus on solutions instead of problems. Some want to share responsibility, instead of focusing on blame and forcing others to make changes. An agricultural stakeholder said “everyone has to put their weapons down. We need to treat each other as neighbors, instead of enemies, and ask one another for help.”

Ideas for increasing communication and collaboration

Suggestions from interviewees to increase communication and collaboration included:

- Hold face to face, facilitated discussion, with ground rules.
- Discuss facts, agree on them, and put aside different world views
- More minds in the room means more thinking, more solutions, more opportunities, but also more problems if not done well
- Get down to business and not be fearful of discussion
- Have all groups represented
- website posts all the information and goings-on of the different groups in the watershed
- Form a subwatershed group, like a Tick Creek group or a Meadow Creek group
- Occasional email updates
- Periodic newsletters summarizing various project activities
- work with the current projects, like CCP
- improve communication between current efforts
- county wide annual discussion for all to share values, interests
- Fund a position to facilitate communication and teach collaboration in the high school
- Provide presentations to the Rotary, Kiwanis, Livestock Association
- Provide presentations and outreach to Liberty and Staley, and Siler City.
- Continually work together on small projects to keep the doors of communication open
- Work with SWCD and Extension to build bridges between the residential and agricultural communities.

Possibility of a collaborative Rocky River management group

In response to forming a watershed wide Rocky River Collaborative management group to discuss water quality issues and strive to restore and protect the River, many respondents resoundingly approved the idea, with comments such as: great or excellent idea, in wholehearted agreement that it should be tried, wonderful, possible, we’re all about it, makes sense. In contrast to these responses, many of the same people mentioned the long standing conflicts present in the watershed and the difficulty in getting past them. Some mentioned the litigation concerning the wastewater treatment plant permit and the bad blood that comes along with that. Some mentioned lawsuits are not the neighborly way to handle things, and should be dropped it so we can all move forward. Many respondents from western Chatham

County suggested that a collaborative should start with small steps to help build ownership of the river across all interest groups. The time was mentioned as ripe for involving the public and governments.

IV. Discussion

This section contains our discussion and analysis of the interview results. Like every watershed, there are upstream and downstream users of the river and its tributaries. As with other communities adjacent to urbanizing centers, newcomers join long-time residents, providing diversity of values and opinions about the river and its uses. Some Rocky River watershed residents have access to the main stem of the Rocky River by owning riverfront property, while most residents experience the river only through fleeting glimpses from their car window, or reading about it.

Many residents have been politically active through various community groups. The Friends of the Rocky River (FORR) is an advocacy group successful for raising issues regarding the River, and is known by many watershed residents. One FORR member and four FORR/RRHF Board members were interviewed – all own riverfront property in the lower watershed.

All but one of the riverfront property owners interviewed expressed frustration that upstream residents may not feel as strongly as they do about protecting the river. They express a strong relationship to the river, possibly strengthened due to proximity, and may be stirred to action when signs of potential impairment, like low flows and algae, are visible. This action involves conducting studies, alerting the community to issues, taking legal actions to increase regulatory protections, and seeking funding for projects. Protecting the river and species in it is extremely important to them, regardless of cost. To others this may appear as self-interest, but they are likely passionate because they have a personal relationship with the river that others are not able to experience. They also seek to provide other citizens with the benefit of access to the river so they may enjoy it, too.

Bringing all the stakeholders together to talk through the issues and understand the different perspectives can lead to better informed decisions and actions. Also, solutions that have broad support tend to be more durable than those that don't.

*-U.S. Institute for Environmental
Conflict Resolution*

The upstream watershed users we interviewed, in this case most were also residents of western Chatham County, appreciate the river as a source of water supply for people, animals, and industry, and have what they believe is a respectful working relationship with the land that drains to the river. As their economic survival is tied to the land and/or the tributaries and mainstem, they are aware of the importance of water supply and quality. They also have a keen awareness of their bottom line for survival and what is required to keep their operations viable. These users interviewed included Town of Liberty, development, agricultural and agribusiness stakeholders (Siler City was not interviewed).

Before parties can get to hearing each others' interests and reframing the issues around those interests, stakeholders need to examine and acknowledge the painful history of their relationships. Past actions

and hurts have created a stalemate where Siler City and Friends of Rocky River have become entrenched in their positions. Litigation challenging the Siler City WWTP permit has ground discussions to a halt.

We were not able to interview Siler City staff for this assessment because their legal counsel advised against it. Legal actions prompt extreme caution in parties' statements, perhaps due to fear that they may be used against them. We did speak to citizens and business owners in Siler City. Other Chatham County residents also had perspectives on the conflict between Siler City and FORR.

In a conflict, parties have different psychological and procedural needs that have to be met in order to move forward with agreements on the substantive issues. Cultural and political differences within the watershed contribute to the conflict regarding the psychological and procedural issues. One party's idea of good faith negotiations may not jibe with another's. We postulate that Siler City and the Town of Liberty, both small towns, appreciate face to face discussion and direct notices of activities that affect their constituents. In general, parties may experience offense when actions that affect them are taken without opportunity for face to face discussion. It appears that a series of actions in the last couple years without Siler City's direct consultation may have contributed to a sense of disenfranchisement in Siler City. Some examples include the withdrawal of incentives by Chatham County previously offered to ISP Mines without consultation with the City, and the filing of the appeal for the WWTP permit by FORR. FORR has made efforts to communicate with Siler City, however feel that their efforts were rebuked. Some point out that Chatham County extended their water line to Siler City during the recent drought, showing good faith in meeting their needs. We believe that parties on both sides are acting in what they believe is good faith, but do not have a thorough understanding of the other party's definition of "good faith". They are not meeting each others' communication interests because they do not know what those interests really are. There is also may be resistance to admitting that the other side's interest or position has validity.

Past history over the reservoir conflict is also still fresh in peoples' minds. FORR tried unsuccessfully to stop the reservoir from being built, though conditions were added to the permit requirement based on their concerns. Some have mentioned that construction was delayed, resulting in higher costs to Siler City. Some say that US Army Corps of Engineers and NC DWQ indicated the process did not significantly delay permitting. Perceptions are quite varied on this issue, and the issue remains controversial.

Some respondents noted that Siler City does not feel nor express a deep responsibility, similar to their own, toward protecting the Rocky River, and do not understand why. They feel frustrated that the Rocky River is not being afforded a higher level of protection. Some members discussed offers to Siler City to help them find grant funding to improve the WWTP. However, in a conflict, accepting help from an adversary may seem like an admittance of wrong-doing.

Right now, collaboration involving these two parties is unlikely. Both parties may be engaged in what they believe is their best alternative to a negotiated agreement, and seem unwilling to move from positions to interests. They may believe the risks, or costs, are greater if they admit that the other party's stances have validity.

We postulate that the costs to both parties have risen much higher than any compromises could have cost. Delays in projects, increasing monetary expenses, increasing frustration (and accompanying personal stress), are costs that appear to be mounting on both sides. Many third parties interviewed noted the potential to use this energy to leverage resources and community development instead of fighting, referring to the costs of missed opportunities.

V. Recommendations for proceeding

In this section, we present our recommendations for proceeding. Recommendations are primarily targeted at our project team partners, but may be applicable to other stakeholders as well. There are many points of conflict in the Rocky River watershed, but stakeholders almost unanimously agree with the importance of working together, finding agreement, and putting conflict behind them. All participants interviewed are involved with some effort to improve and/or protect water quality, though most are unaware of others' efforts. The opportunity exists to build on those efforts. We would like to move beyond the history of conflict and search out avenues to learn and work together. Federal and state agencies strongly support watershed planning as a collaborative endeavor. In the *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*, the USEPA, (which funded this project), states that "if members of the community... are involved up front and see that their concerns are addressed, they will be more likely to participate in developing management options and supporting plan implementation".

For this project we proposed convening a collaborative (or to use another term "consensus-building") Rocky River watershed management effort, by convening a collaborative group to review the watershed plan completed by NCEP in 2005. However, our situation assessment has revealed that conditions are not supportive of a collaborative effort at this time. Collaborative decision-making is a voluntary effort that seeks to meet *all* participants' interests. According to Larry Susskind (1999), consensus-building is not likely to succeed if one or more key stakeholder refuses to participate, or if stakeholders believe that they can meet their needs better through other methods (such as litigation).

Consensus-building is based on the principles of local participation and ownership of decisions. Ideally, the consensus reached will meet all of the relevant interests of stakeholders, who thereby come to a unanimous agreement. While everyone may not get everything they initially wanted, "consensus has been reached when everyone agrees they can live with whatever is proposed after every effort has been made to meet the interests of all stake holding parties."
From www.beyondIntractability.org

Instead, we propose revising our project goals for the Rocky River watershed. Goals should be to increase communication across parties, and provide opportunities for stakeholders and citizens to understand and recognize each others' concerns and contributions. This could lay the groundwork for further collaboration. To do this, we will:

- Provide opportunities for learning about stakeholders' efforts (through methods including newsletters, website, and listserv)
- Provide opportunities for anyone interested to participate in a voluntary Tick Creek watershed group that focuses on restoring and protecting that watershed while meeting participants' needs
- In a year, assess stakeholders' willingness to participate in a Rocky River Summit. Suggested as an annual event by a stakeholder we interviewed, at the event participants would be asked to:
 - set aside their positions
 - openly share their interests (why they have held their positions)
 - seek to understand each others' interests to the extent they can voice each others' interests to their satisfactions
 - brainstorm a vision and set of goals for the rocky River watershed that everyone can agree upon

Following are our recommendations for moving forward on collaboratively restoring and protecting resources in the Rocky River and Tick Creek.

1. Facilitate communication and education

A need for increased opportunities to learn about others' interests and activities was identified by stakeholders. We recommend the following specific actions to facilitate increased communication, particularly in regards to this EPA-funded project.

- Subscribe all interested stakeholders to a listserv for information about this project, and possibly other efforts.
- Create a project newsletter (and mail through US postal service to those without email access).
- Use the WECO website as clearinghouse website to inform about projects in the watershed. Add links to all relevant projects, activities, and documents, etc. regarding stakeholders' projects. Post meeting notices from the different groups. Use the listserv to communicate website updates to stakeholders
- NCSU and EEP should work together to adequately summarize the Rocky River EEP report in a fact sheet format.
- All local governments (including Chatham County, Siler City, Pittsboro) and natural resource agencies in Chatham County would benefit from participating in the Chatham Conservation Partners (CCP). This ensures their interests are heard and considered, and their constituents are more likely to benefit from the work of this voluntary effort.

2. Engage in joint fact finding

Many respondents spoke of the need for unbiased, third party data. Most thought this was needed to help define the problems with the Rocky River, and some thought that having the data alone would clearly spell out the solutions. We want to caution parties that regardless of how much data is collected, there will never be perfect information. Models contain assumptions and all data is subject to interpretation.

How can data become an asset rather than a sticking point? Multi-party agreement upon data collection and analysis methods can help allay fears about methods, and increase buy-in of results. Joint fact finding and multi-party review of data, along with training in collaborative decision making will help participants to pose questions about how data is interpreted and used. Knowing the levels of nutrients in the river at various points, the presence of endangered and threatened species, land uses, etc. will certainly help to better understand the Rocky River watershed and lead to better-informed decisions. But decision-makers, including elected and appointed officials, government agencies, non-profits, businesses, and landowners, have many considerations to take into account in addition to the scientific and technical data. Other information that is important to the decisions may include economic and social values.

We will seek to teach about and model joint fact finding in this project. We encourage other Rocky River stakeholders to learn about and engage in joint fact finding as well.

3. Convene a voluntary Tick Creek collaborative group

The largest part of the EPA 319 granted project specifically seeks to advance knowledge and restoration of Tick Creek due to its impaired status on the 303(d) list. We received strong feedback from many stakeholders that making progress in Tick Creek could provide the small steps needed for gaining trust and confidence across various stakeholder interests. Any improvements made to the Tick Creek watershed will also benefit the lower Rocky River watershed. We make the following specific recommendations for this project:

- Summarize the currently available data and the data requested, and present to NCSU technical team for feedback concerning what is possible within the parameters of this project.
- Develop a data collection and monitoring plan.
- Gather GIS layers and make available in Google Earth format. (e.g. - riparian buffers information, BMP and restoration locations, land use/land cover)
- Form a voluntary Tick Creek watershed group, consisting of grant partners, interested landowners, and all interested stakeholders, including county and municipal governments. Consider an official affiliation with Chatham Conservation Partners.
- Watershed group would examine data pulled together by NCSU and project partners, determine goals and needs for Tick Creek, identify potential project locations, determine outreach involvement needs, conduct outreach/involvement, work with willing landowners to voluntarily install practices that would reduce erosion and pollution affecting Tick Creek.
- Identify potential areas for urban BMP retrofit(s).
- Produce periodic newsletters about Tick Creek watershed group's work to inform all interested parties throughout the Rocky River watershed.
- Update CCP, Chatham County Economic Development Corporation workgroup, Siler City Commissioners and Chatham County Commissioners at appropriate points when progress has been made in Tick Creek.

4. Reframe the issues

When asked about the health of Rocky River, most people reiterated what they had heard from other parties: it's impaired, healthy, dying, sick. A few respondents told us they only know what others have told them. Characterizing Rocky River's "health" can be a hot issue since it may carry certain policy requirements and/or opportunities, or even a perception of blame.

We suggest reframing the issue surrounding the health of the Rocky River.

Rather than characterizing the Rocky River as "healthy", "sick", or "dying" or whatever adjective is used, stakeholders may find it more useful to identify the uses that they wish the river to support. Then working backwards, stakeholders can identify what conditions are necessary to support those uses. Solutions for providing and improving those conditions can emerge out of discussions about how to create those conditions. For example, what conditions are needed to support provision of drinking water and wastewater treatment for watershed citizens and livestock? What goals do the local governments have for economic and community development, and how does the Rocky River support those goals? What uses do river corridor landowners want to support in the downstream Rocky River? Native wildlife habitat? Recreational fishing? What conditions are necessary in the Rocky River to support each of those uses? Technical experts, including state and federal agencies and scientists from Universities and Community Colleges and nongovernmental organizations, can help identify what conditions are necessary to support the various uses wanted.

Such a reframing can start moving parties out of their trenches, and into salient discussion areas. Learning how to express one's *interest* (*why something is wanted*) rather than staking out a *position* (*a specific action wanted*), is necessary for these discussions. Once the desired conditions are identified, goals for reaching these conditions, and potential trade-offs can be discussed.

5. Meet participant needs through principled negotiation

We recommend that stakeholders learn about and practice *principled negotiation*. Principled negotiation refers to the interest-based approach to negotiation set out in the well-known conflict resolution book, *Getting to Yes* by Roger Fisher and William Ury. The book advocates four fundamental principles of negotiation: 1) separate the people from the problem; 2) focus on interests, not positions; 3) invent options for mutual gain; and 4) insist on objective criteria.

Stakeholders have multiple interests that they feel need to be met by the Rocky River watershed. Before solutions can be proposed and implemented, it's crucial for stakeholders to listen to others state their interests in their own words. Stakeholders must be able to understand each other's interests and needs to the point that they can state them back to the first party's satisfaction. This is the essence of collaboration and seeking mutual agreements. Solutions are not likely to be

broadly accepted in the absence of a common understanding of everyone's interests. Without this, assumptions fly, and misunderstandings ensue.

The three legged stool of collaboration and consensus is Psychological, Procedural, and Substantive needs. **Psychological concerns** are those issues that relate to the emotional well being of group members, such as safety, trust, and integrity. **Procedural concerns** are those issues that relate to the process by which a problem is addressed. **Substantive concerns** are those issues that most view as the basis of the problem to be solved, which may be masked by positions the parties adhere to. Different stakeholders require different psychological and procedural processes to meet their needs and to come to agreement on the substantive concerns. (Webne-Behrman) For example:

- Citizens may have the psychological need to feel that government is stewarding their water resources.
- Local governments have the procedural need for direct involvement in decisions that affect their constituents' interests.
- The substantial need here is to have a river that supports the uses desired by the stakeholders.

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Appendix A: Rocky River/ Tick Creek Watershed Situation Assessment Interview Script

1. Code for Interviewee (Name and contact info in separate file)
2. Interest(s) represented
3. What do you think of when you hear the words “Rocky River?”
4. What issues concern or interest you regarding the Rocky River?
5. What issues concern or interest you regarding Tick Creek watershed?
6. How healthy is the Rocky River and why? How healthy is Tick Creek and why?
7. What information should we collect to determine the health/environmental quality of Rocky River? Tick Creek?
8. What plans does your organization have within the Rocky River basin/ Tick Creek watershed? (growth/development/restoration/education & other programs)
9. What groups do you know about in the Rocky River and Tick Creek?
10. Who has authority to make decisions about the watersheds?
11. Are there any imminent changes to the watershed that you think might impact the Rocky River and/or Tick Creek, either positively or negatively?
12. What do you think can and should be done concerning the Rocky River? Tick Creek?
13. Where do you get information about local environmental issues?
14. On a scale of 1 to 5 (5 highest), what is the current level of communication between groups with a stake in the Rocky River?
15. On a scale of 1 to 5 (5 highest), what is the current level of collaboration between groups with a stake in the Rocky River?
16. What, if any, benefits would be gained by increased communication between parties? Increased collaboration?
17. What would increased communication and collaboration look like?
18. What do you think about the possibility of a basin-wide collaborative effort to share information, leverage resources?
19. How do you see your organization involved in the watershed-what could you bring to the table?
20. What would make it worth your while to come to the table?
21. Could we add you to our contact list for the listserve and mailings of updates?
22. Who else should we interview?
23. Before we leave, is there any other issue you want to talk about?

Appendix B: What do you think of when you hear the words “Rocky River?”

Interviewees were asked to respond with their first impressions when they hear the term “Rocky River.” A variety of responses were elicited, several of the following responses were provided by more than one person. Responses are summarized in no particular order.

- Low flow, wide, rocky
- Beautiful, special
- Historically used for swimming
- Historically had raw sewage
- Fishing, small mouth bass
- Watching kayakers in high flows
- Walking along river
- Great grandparents grew up here
- Property boundary and riparian rights
- Business park on river
- Citizen and agency work
- Cape Fear shiner habitat
- Potential for improvement
- Rural, agriculture
- Flashy, flood prone
- FORR/Siler City, west v east conflict
- Woods Mill Bend preservation site, White Pine site
- Aulder Academy
- Cattle exclusion & restoration project
- Drinking water for Siler City
- Siler City wastewater treatment plan
- Affected by nutrients from agriculture, wastewater effluent, stormwater runoff
- A river not unlike other rivers
- Rocky River Heritage Foundation, Friends of Rocky River
- Chatham County
- Siler City
- Rocky River Festivals

Appendix C: Map of Rocky River watershed and Tick Creek watershed

