Yadkin Riverkeeper
Roadmap to a Cleaner Yadkin

Forsyth County Creek Week
Virtual Brown Bag Lunch Meeting
March 22, 2021

YRK Organizational Background

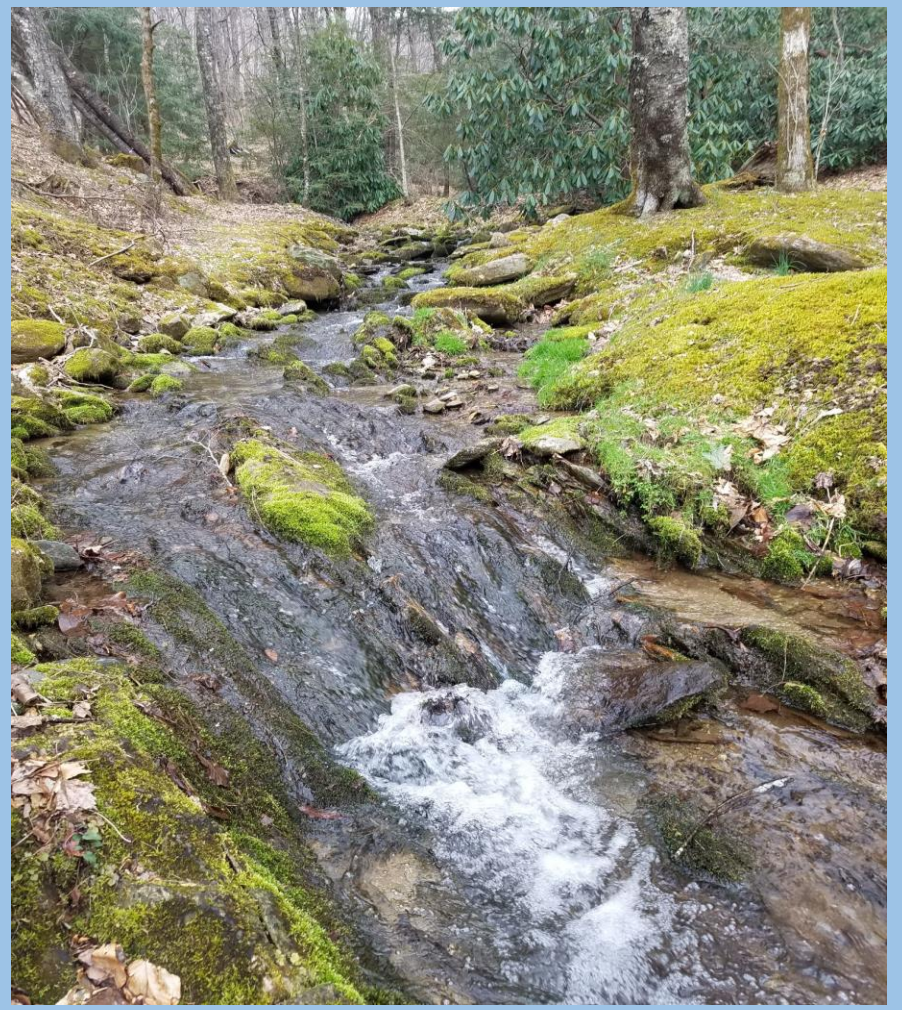
- Established in 2008
- 300 Members
- 14-Member Board of Directors
- 3 Full-time, 2 Part-time Staff
- 1/3 of funding from individuals, 1/3 from foundations, 1/3 from contracts
- Environmental Advocacy Organization
- Affiliated with the global Waterkeeper Alliance

YRK Major Accomplishments

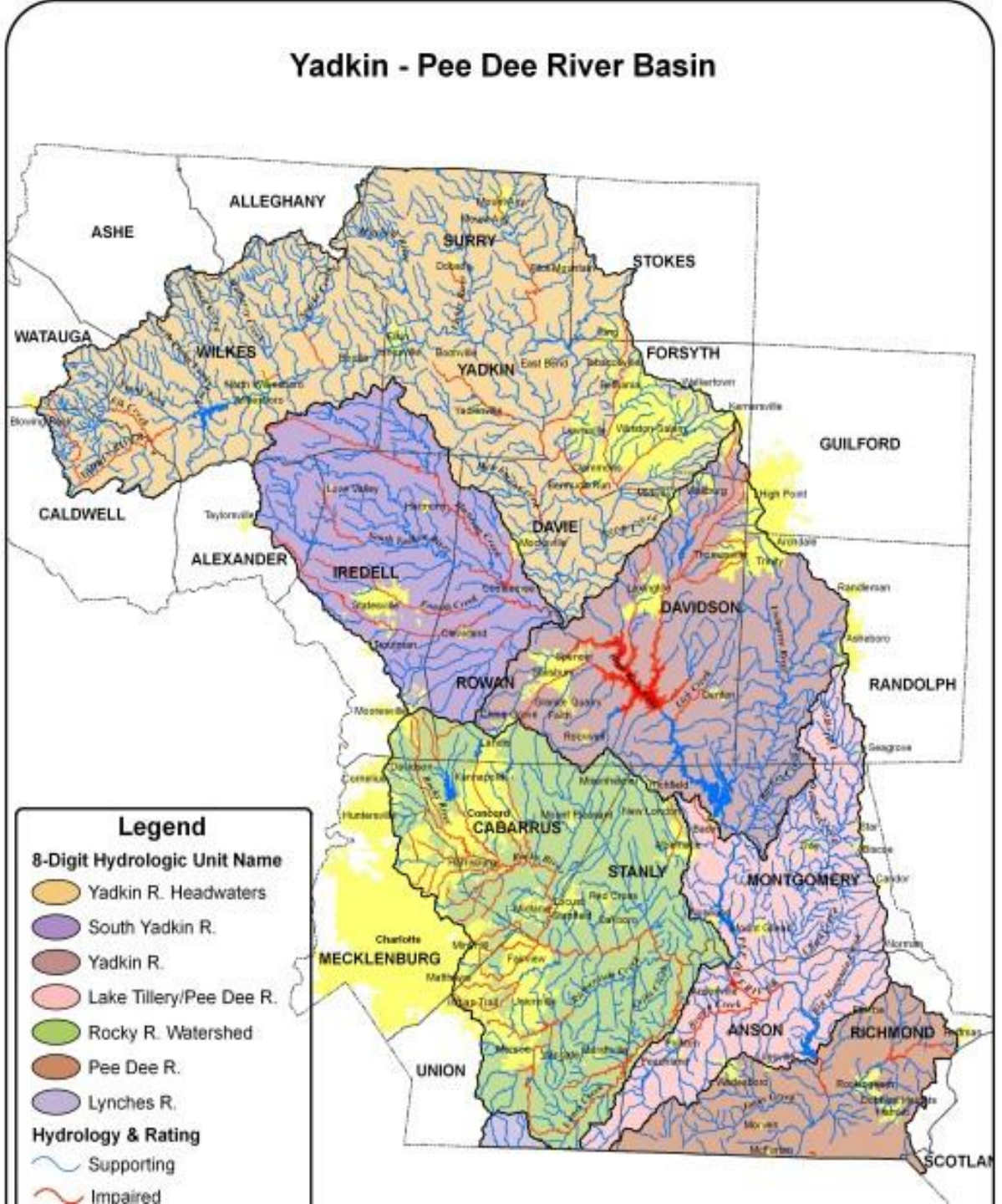
- Challenging FERC Relicensing of Alcoa Yadkin Project
- Successful Coal Ash Removal Litigation Against Duke Energy at Buck Power Station
- Tour de Yadkin/Historic Paddle Series
- Yadkin River State Trail Paddle Map
- Pure Farms/Pure Water CAFO Campaign
- Dance for the River

Yadkin River Factoids

- Headwaters along the Blue Ridge escarpment
- Travels 230 miles in NC through 21 Counties and 90+ municipalities
- Turns into the Pee Dee River at its confluence with the Uwharrie River in Montgomery County
- Yadkin Pee Dee Watershed – 7,200 square miles
- Drinking/industrial water supply for nearly 1 M people – 200 M gallons per day
- 2 M acres of working farmland in the watershed
- Highest concentration of fish weirs in SE US
- 6 hydropower dams built between 1925-1967
- 1 flood control dam in upper basin – Kerr Scott Reservoir
- Duke Energy Buck Power Station located on River in Rowan County
- Designated as an official state trail in 1987



Yadkin - Pee Dee River Basin



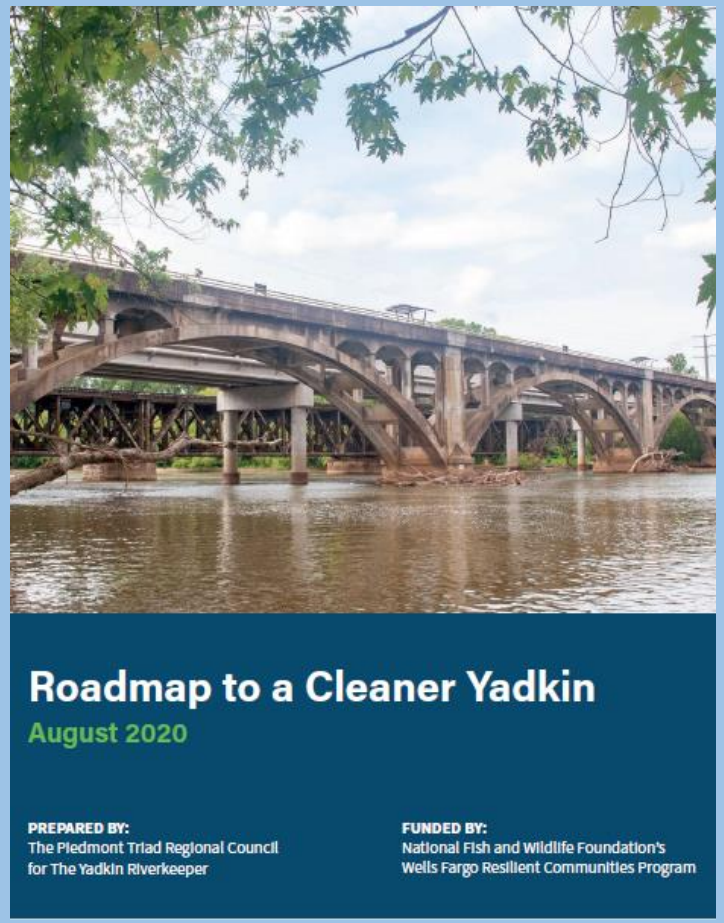
2020 YRK Milestones

- River ReConnect Program
  - Launched Swim Guide Program
  - Monthly E-news
  - Forsyth, Rowan and Davidson Creek Week Programs
  - High Rock Lake Clean Sweep
  - Educational Offerings
  - Historic Paddle Series
- Diversity, Equity and Inclusion Initiatives
  - Diversity Communications Specialist
  - Board and Staff Racial Equity Training
  - Racial Inequality and Justice Statement

2020 YRK Milestones (continued)

- Duke Energy's Removal and Recycling of Coal Ash from the Buck Power Station on the River in Rowan County
  - NCDEQ ruling statewide excavation
  - Air, wastewater discharge and coal ash removal plans approved
  - Review of discharge monitoring reports and fish tissue sampling

- Release of "Roadmap for a Cleaner Yadkin"
  - Comprehensive, basinwide strategies for reducing nonpoint source pollution
  - Closed out 2016 National Fish and Wildlife Foundation Wells Fargo Resilient Communities Grant
  - Yadkin River Basinwide Plan update 2021



2021 Priorities

Protecting and Enhancing the Yadkin River

Yadkin Riverkeeper Priorities

- Reconnecting People to the River
  - Paddle Series
  - River/Lake Cleanups – High Rock Lake Clean Sweep
  - River Access – New Yadkin River State Trail Paddle Map
  - Water Quality Monitoring
  - Education and Outreach
- Coal Ash Removal at Buck Power Station
- Alcoa Hazardous Waste Cleanup on Badin Lake
- Concentrated Animal Feedlot Operations (CAFOs)
- Harmful Algal Blooms (HABs) and Hypoxia
- Nonpoint Source Pollution
- Sustainable Agriculture
- Public Policy Advocacy

Alcoa Badin Business Park (ABPP) Stormwater Permit and Hazardous Waste Clean Up

- YRK Opposed to Special Order by Consent (SOC) for ABBP NPDES stormwater permit
- Generated more than 350 public comments requesting public hearing on SOC – DEQ rejected SOC
- Represented by Southern Environmental Law Center on water quality issues
- Recommending excavation of most dangerous hazardous waste sites near Badin Lake and Little Mountain Creek

Water Quality Advocacy

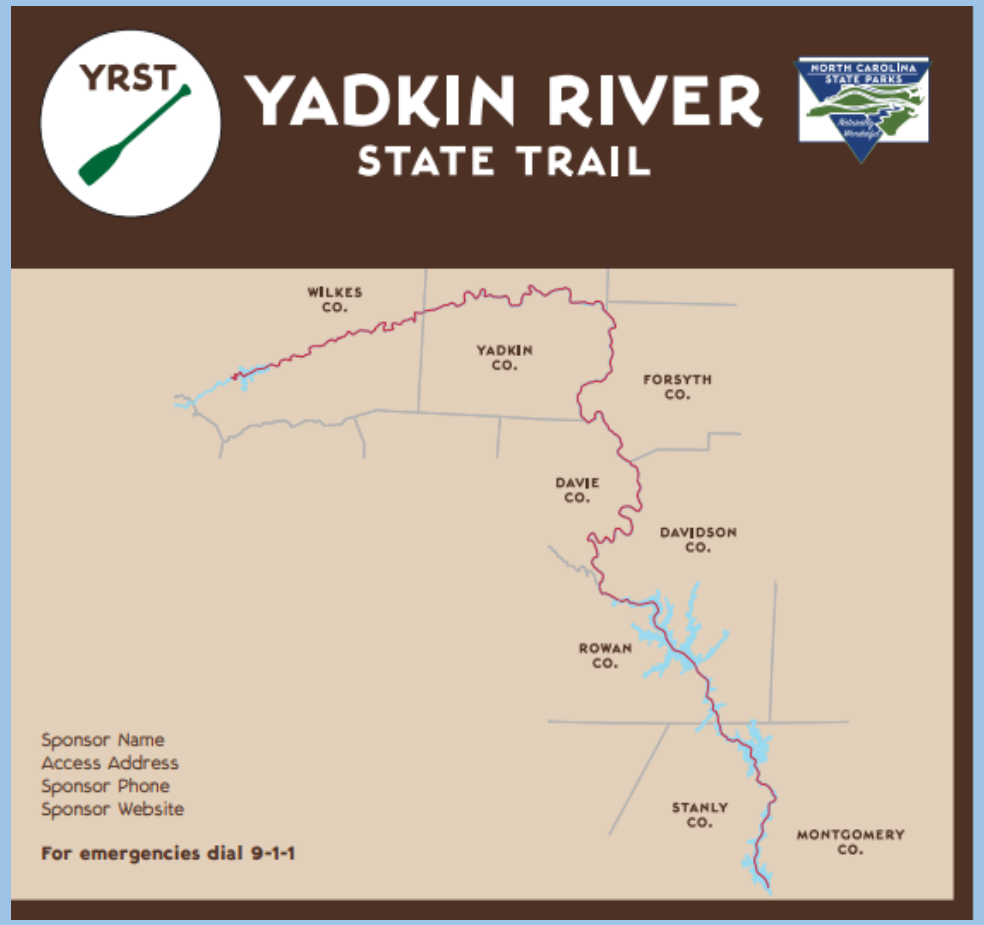
- NC EMC - Chlorophyll – a standard
- Waterkeepers Alliance Animal Agriculture Agenda
  - Agronomic rate for phosphorus
  - Increased funding for BMPs
  - Poultry siting/waste management criteria
- Harmful Algal Bloom (HAB)
  - Statewide Taskforce
  - HAB Monitoring and Response
  - HAB Guidance for Riverkeepers
- YRK Executive Director to Register as Lobbyist

Harmful Algal Blooms (HABs)

- Riverkeeper HAB Guide to be published in early 2021
- Lyngbya survey on lakes in 2020
- One pHAB on Abbotts Creek arm of HRL in 2020
- Statewide Taskforce
  - Define HABs
  - Recommend monitoring program
  - Develop response protocol
  - Numerical criteria for nutrients, chl-a, cyanotoxins

Yadkin River State (YRST) Trail Blueway Map

- YRK $40K contract w/ NC Division of State Parks to update YRST blueway map/signage
- YRK contracting w/ PTRC to do online and printed YRST map
- Needs Assessment
- Mini-grants for access area improvements
- Signage at access/take out areas
- Mile Markers/Emergency Access



YRK Sustainable Farming Initiative

- Establish network of sustainable, river-friendly farmers
- Pledge to Implement Sustainable, River-Friendly Farming Practices
- Advocate for Policies and Programs that Support Sustainable Farms
- Expand to Yadkin County

Water Quality Monitoring

- Monthly nutrient and bacteria sampling on HRL
- Weekly E.coli sampling for Swim Guide sites in Summer months
- Bacterial, turbidity & chlorophyll-A sampling as needed
- Monthly flights and aerial surveys of watershed
- Involvement with YPDRBA and YPDWMG

Waterkeepers Carolina Plastics Project

- $188 K NC Attorney General Environmental Enhancement Grant (EEG) to Waterkeepers Carolina
- 2-Year Grant for Sampling Streams and Sediments for Microplastics
- Year 2 - Installation of “Litter Getter” on small stream
- YRK 1 of 15 NC Waterkeeper Organizations Participating

YRK Historic Paddle Series 2021

- June 19: Falls Reservoir
- July 24: Crater Park Elkin to Carolina Heritage Winery
- August 28 – Kayak Demo-Rowan Creek Week
- October – Bonus Paddle

2021 River/Lake Cleanups

- March 27 – Salem Creek, Forsyth Creek Week
- April 17-18 – Great Yadkin River Bridge Earth Day Clean Ups (Basinwide)
- June 4 – NC Trail Days River Clean Ronda to Elkin
- September 18 – High Rock Lake Clean Sweep

Roadmap to a Cleaner Yadkin: Project Goals

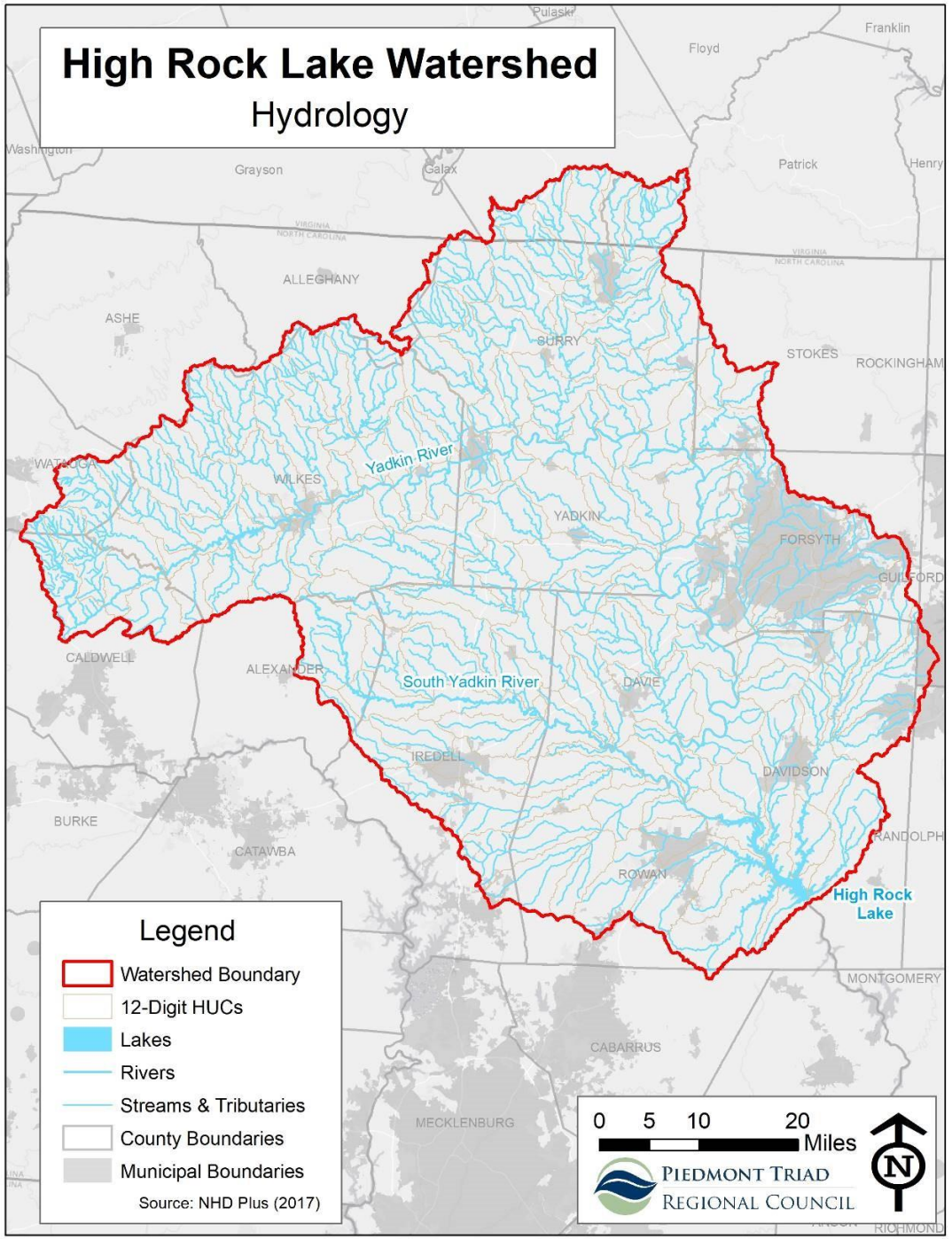
- Develop nonpoint source assessment tool to identify and prioritize sub-basins mostly likely to produce nutrient and sediment runoff
- Identify sources of nonpoint source pollution and potential impacts
- Assess the need for additional water quality standards to reduce nonpoint source pollution and related impacts (i.e., high turbidity, increase in chlorophyll-a, harmful algal blooms, pH)
- Recommend strategies to reduce nonpoint source pollution and its impact on High Rock Lake
- Identify priority conservation lands to protect water quality

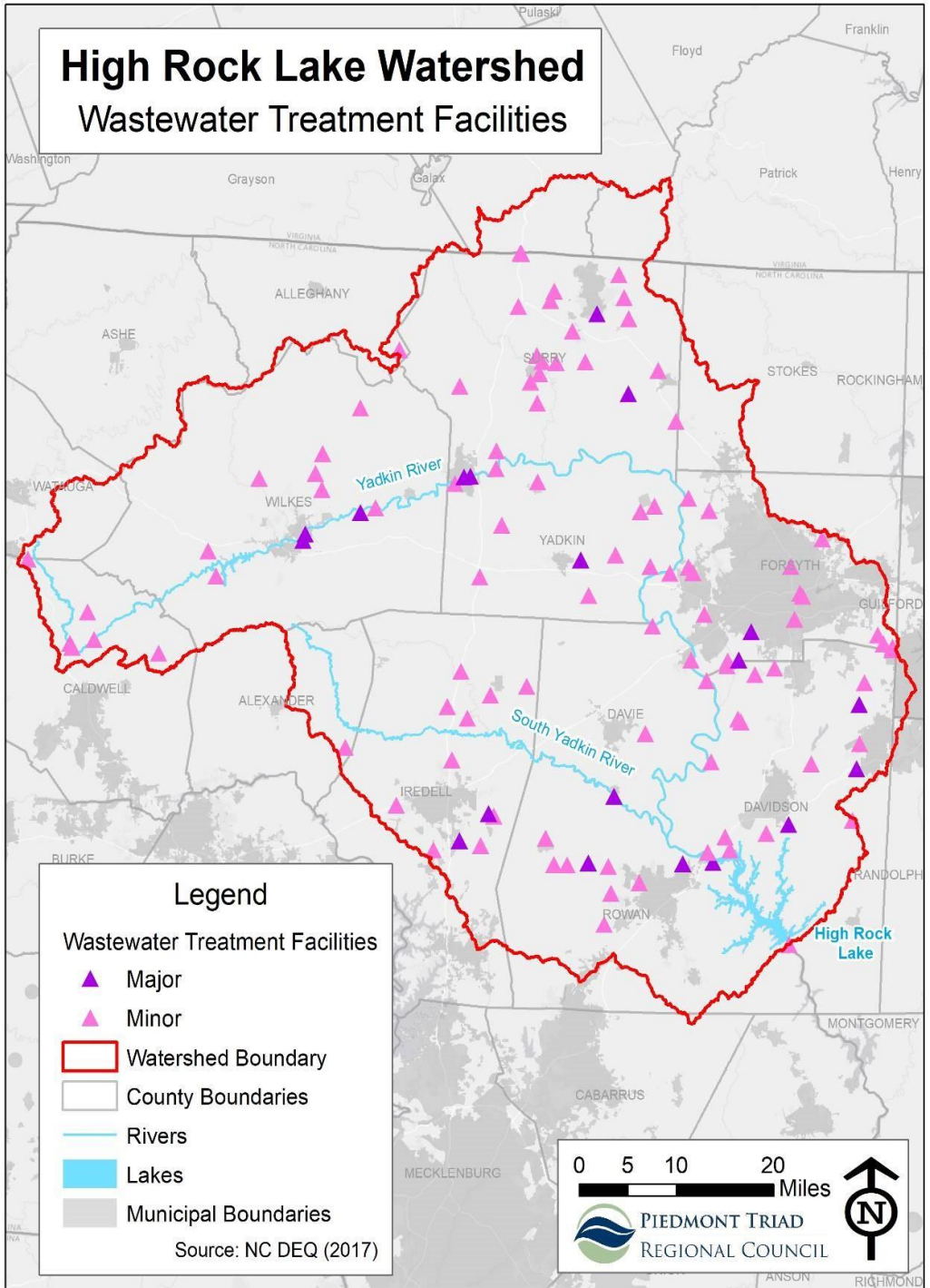
Project Timeline/Background – Roadmap to a Cleaner Yadkin River

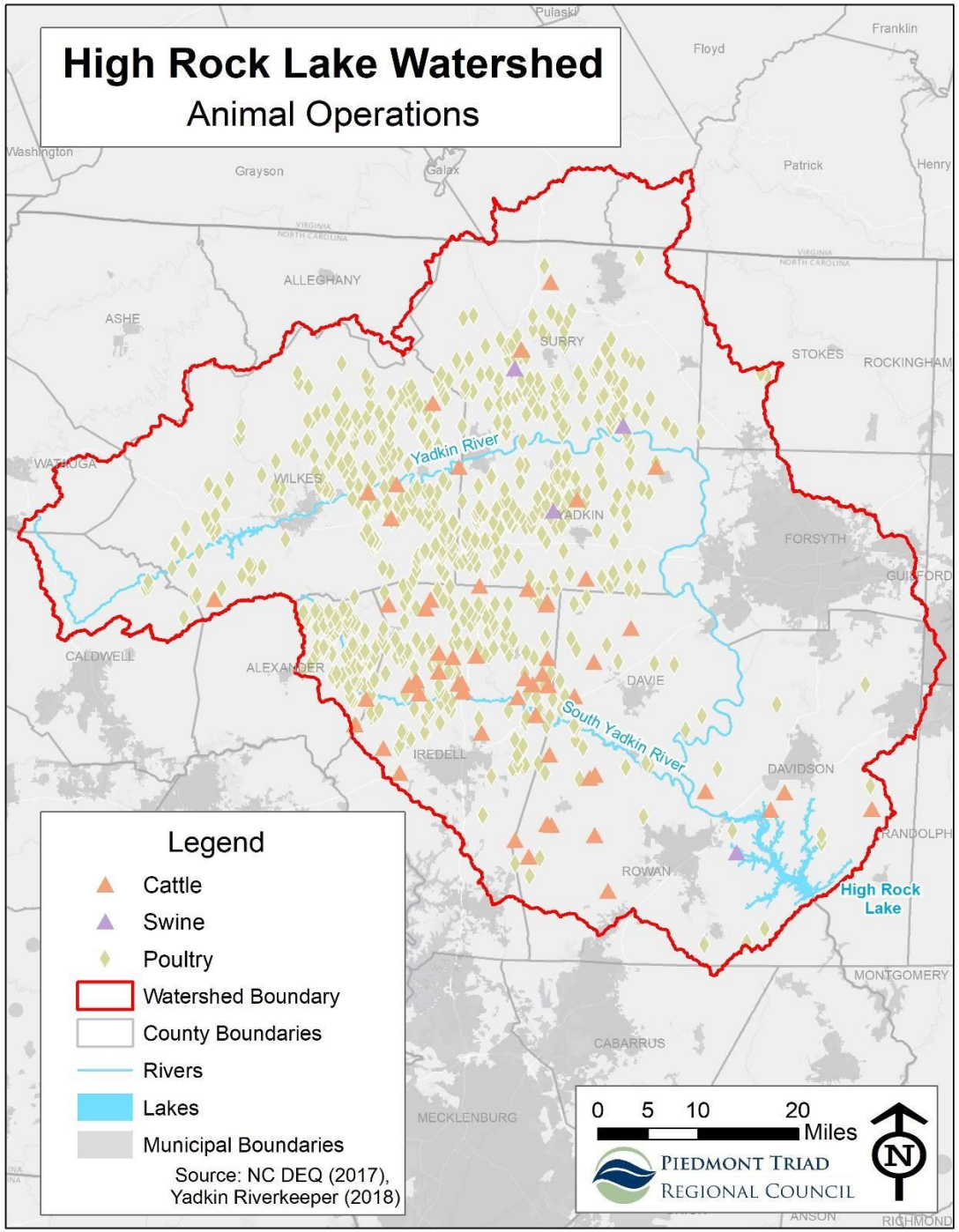
- 2016 - Funding received from the National Fish and Wildlife Foundation's Wells Fargo Resilient Communities grant program
- 2017-2018 – Development of a GIS-Based Nonpoint Source Nutrient Assessment Tool under contract with the Piedmont Triad Regional Council
- 2019 – Stakeholder Review
- 2020 – Watershed Protection Task Force Formation
- 2020 – Identification of Priority HUC-Watersheds for Further Study and Conservation/Mitigation Measures
- 2020 – Identify Federal, State and Local Funding Sources to Reduce Non-Point Sources of Nutrient Pollution
- 2020 – Publish Final Report and Brochure

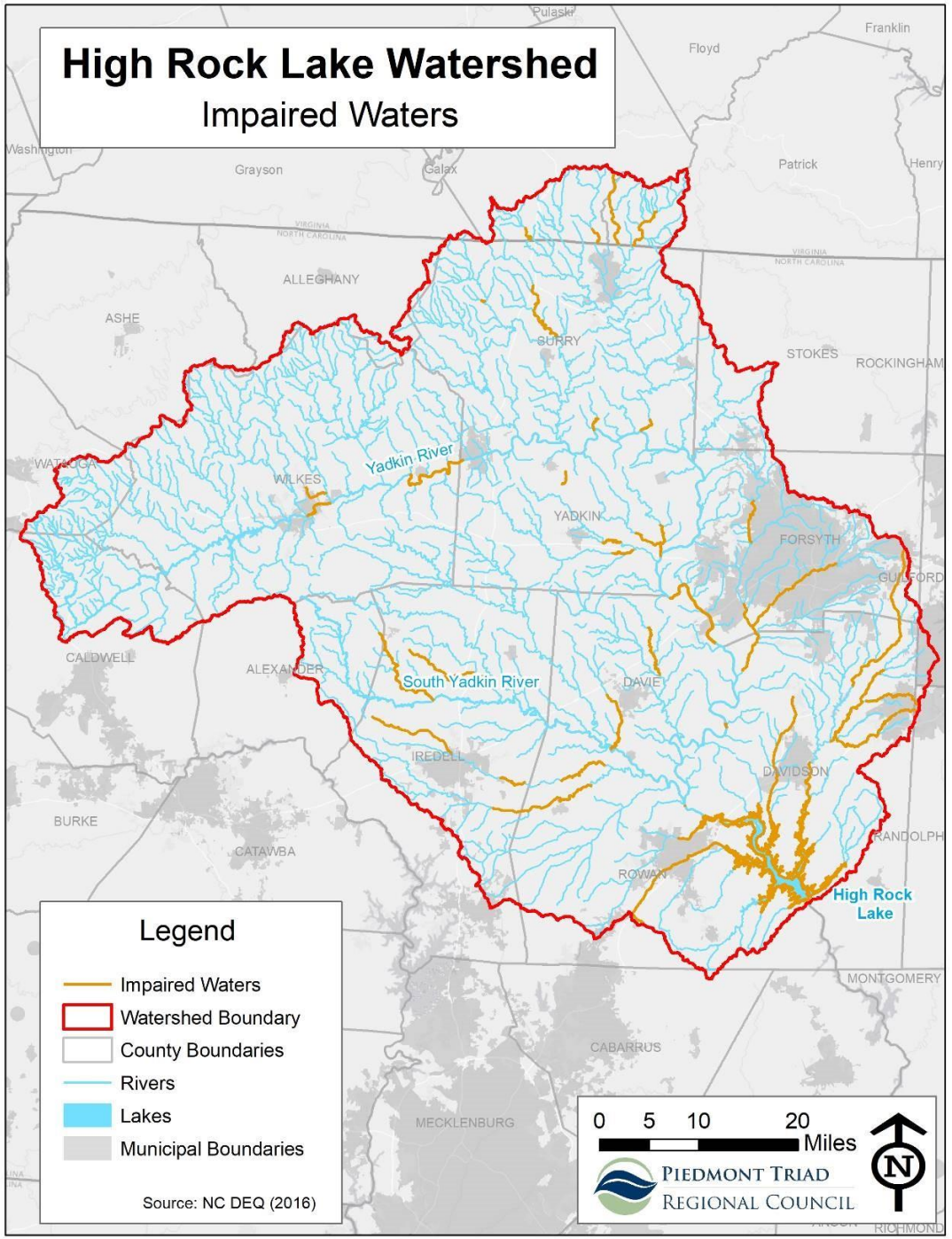
Project Methodology

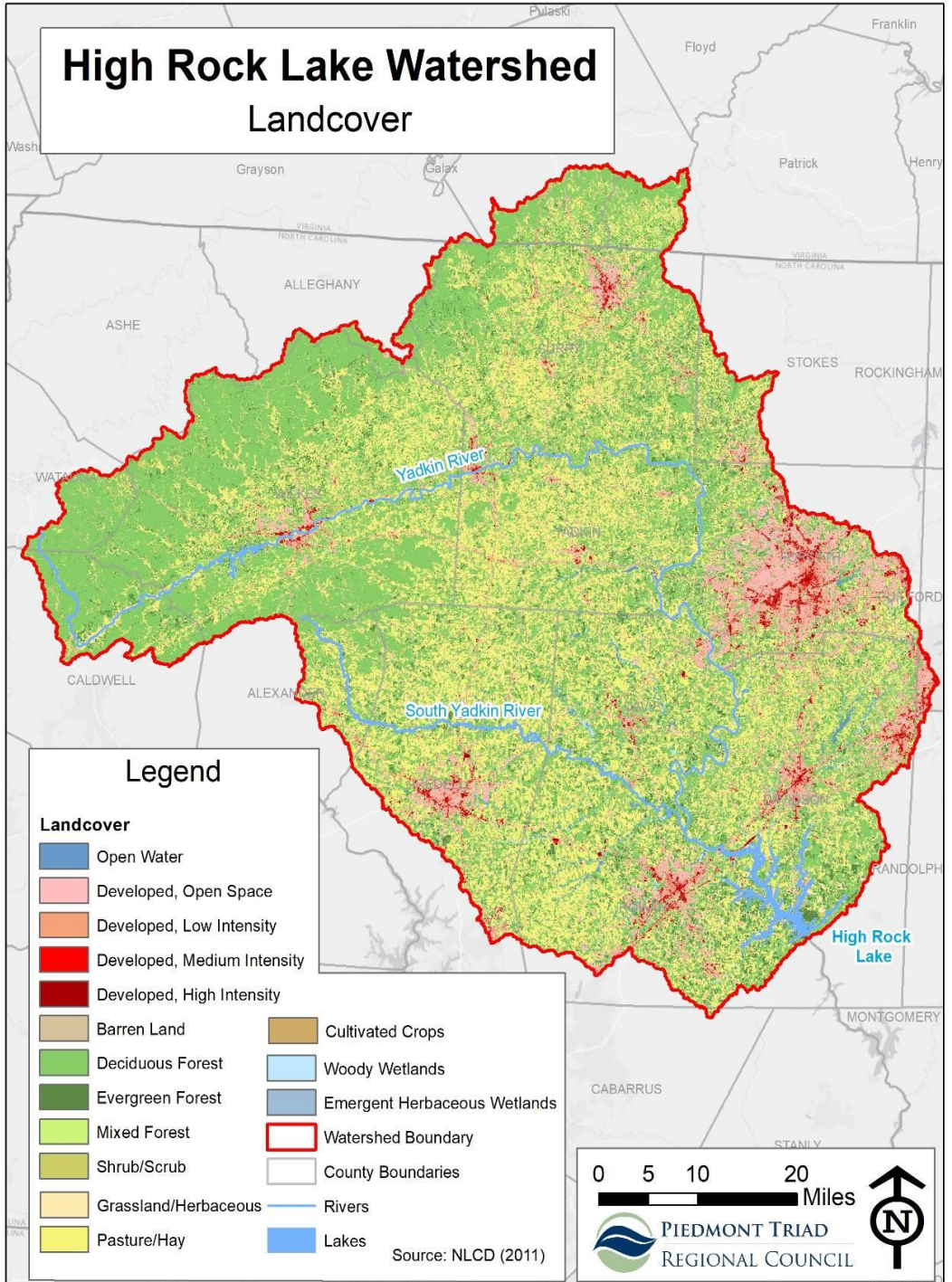
- Limited to Yadkin River Watershed Above High Rock Lake
- Piedmont Triad Regional Council Review of Existing Models
- Development of GIS-Based Watershed Prioritization Model
- 14 Data Layers Including: impervious surface cover, animal operations, soil characteristics, impact sites, roads, forest cover, population density, elevation, parcel size, zoning, and floodplain data
- Weighting of Watershed Stress Model Criteria
- Ranking of Priority High Stress Watersheds

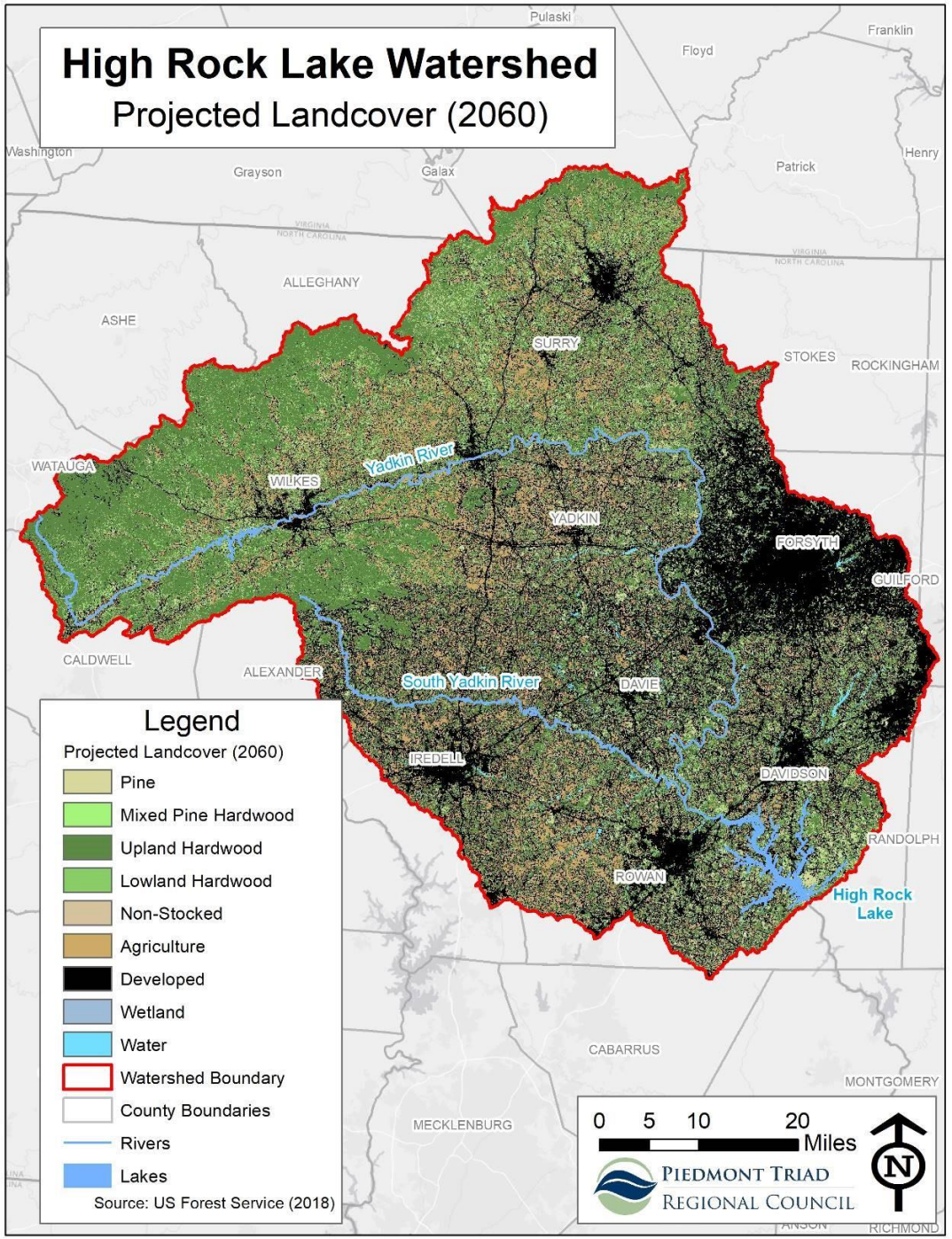

High Rock Lake Watershed
Hydrology
Yadkin River
South Yadkin River
High Rock Lake
Legend
Watershed Boundary
12-Digit HUCs
Lakes
Rivers
Streams & Tributaries
County Boundaries
Municipal Boundaries
Source: NHD Plus (2017)
0 5 10 20 Miles
Piedmont Triad Regional Council
N
Pulaski
Floyd
Franklin
Grayson
Galax
Patrick
Henry
Washington
ALLEGHANY
ASHE
SURRY
STOKES
ROCKINGHAM
WILKES
YADKIN
FORSYTH
GUILFORD
CALDWELL
ALEXANDER
DAVIE
IREDELL
DAVIDSON
BURKE
CATAWBA
ROWAN
RANDOLPH
MONTGOMERY
CABARRUS
MECKLENBURG
RICHMOND

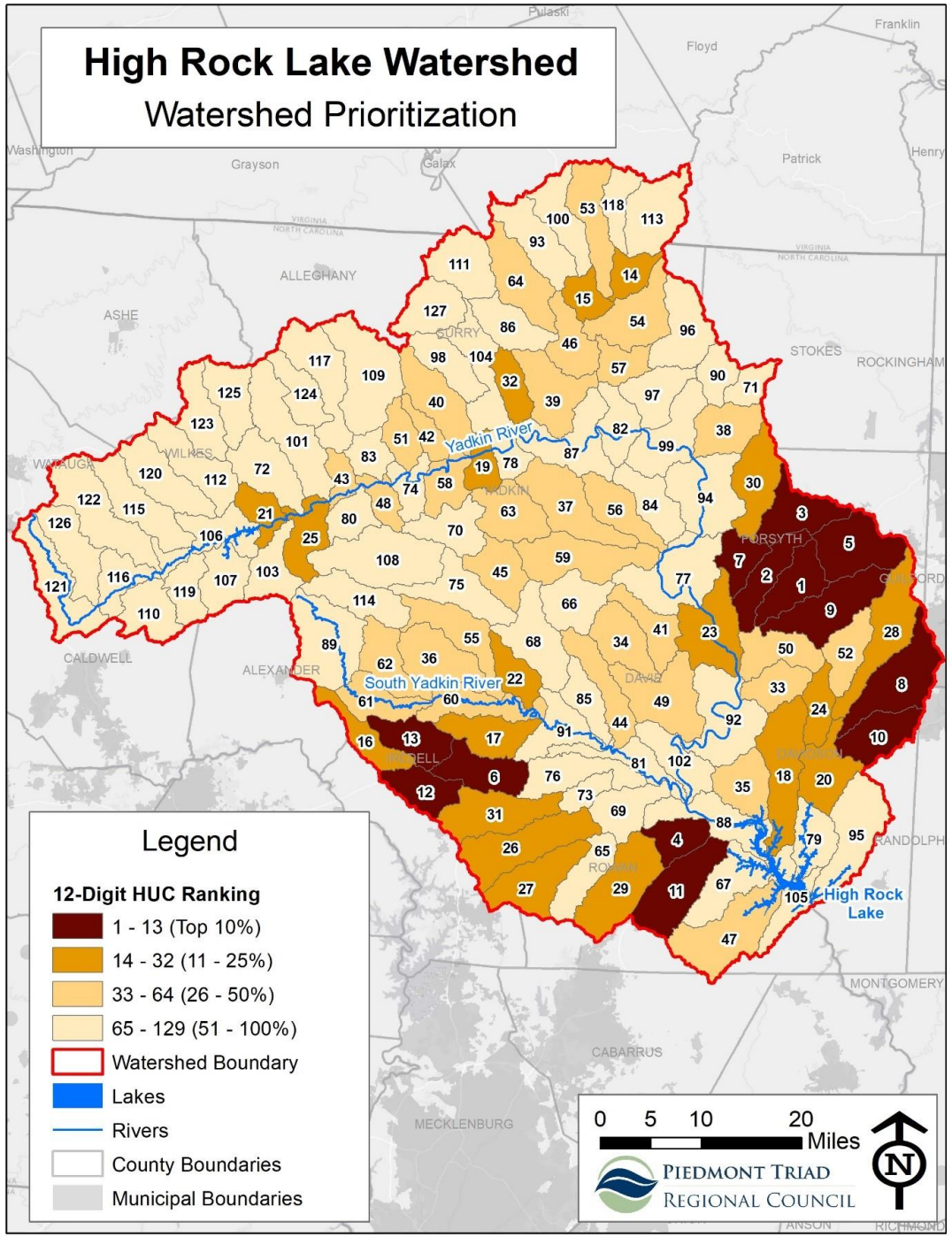

High Rock Lake Watershed
Wastewater Treatment Facilities
Pulaski
Floyd
Franklin
Washington
Grayson
Galax
Patrick
Henry
ALLEGHANY
ASHE
SURRY
STOKES
ROCKINGHAM
WATAUGA
WILKES
Yadkin River
YADKIN
FORSYTH
GUILFORD
CALDWELL
ALEXANDER
DAVIE
South Yadkin River
IREDELL
DAVIDSON
BURKE
RANDOLPH
ROWAN
High Rock Lake
MONTGOMERY
CABARRUS
MECKLENBURG
ANSON
RICHMOND
Legend
Wastewater Treatment Facilities
Major
Minor
Watershed Boundary
County Boundaries
Rivers
Lakes
Municipal Boundaries
Source: NC DEQ (2017)
0 5 10 20
Miles
N
Piedmont Triad
Regional Council


High Rock Lake Watershed
Animal Operations
Pulaski
Floyd
Franklin
Washington
Grayson
Galax
Patrick
Henry
VIRGINIA
NORTH CAROLINA
ALLEGHANY
ASHE
SURRY
STOKES
ROCKINGHAM
Yadkin River
WATAUGA
WILKES
YADKIN
FORSYTH
GUILFORD
CALDWELL
ALEXANDER
DAVIE
South Yadkin River
IREDELL
DAVIDSON
RANDOLPH
ROWAN
High Rock Lake
MONTGOMERY
CABARRUS
MECKLENBURG
ANSON
RICHMOND
Legend
Cattle
Swine
Poultry
Watershed Boundary
County Boundaries
Rivers
Lakes
Municipal Boundaries
Source: NC DEQ (2017), Yadkin Riverkeeper (2018)
0 5 10 20
Miles
PIEDMONT TRIAD REGIONAL COUNCIL
N


High Rock Lake Watershed
Impaired Waters
Yadkin River
South Yadkin River
High Rock Lake
Legend
Impaired Waters
Watershed Boundary
County Boundaries
Rivers
Lakes
Municipal Boundaries
Source: NC DEQ (2016)
0 5 10 20 Miles
PIEDMONT TRIAD REGIONAL COUNCIL
N


High Rock Lake Watershed
Landcover
Pulaski
Floyd
Franklin
Grayson
Galax
Patrick
Henry
ALLEGHANY
ASHE
STOKES
ROCKINGHAM
Yadkin River
CALDWELL
South Yadkin River
RANDOLPH
High Rock Lake
MONTGOMERY
CABARRUS
Legend
Landcover
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Barren Land
Deciduous Forest
Evergreen Forest
Mixed Forest
Shrub/Scrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
Watershed Boundary
County Boundaries
Rivers
Lakes
Source: NLCD (2011)
0 5 10 20
Miles
PIEDMONT TRIAD
REGIONAL COUNCIL
N


High Rock Lake Watershed
Projected Landcover (2060)
Pulaski
Floyd
Franklin
Washington
Grayson
Galax
Patrick
Henry
ALLEGHANY
ASHE
SURRY
STOKES
ROCKINGHAM
WATAUGA
WILKES
Yadkin River
YADKIN
FORSYTH
GUILFORD
CALDWELL
ALEXANDER
South Yadkin River
DAVIE
IREDELL
DAVIDSON
RANDOLPH
ROWAN
High Rock Lake
CABARRUS
MONTGOMERY
MECKLENBURG
RICHMOND
Legend
Projected Landcover (2060)
Pine
Mixed Pine Hardwood
Upland Hardwood
Lowland Hardwood
Non-Stocked
Agriculture
Developed
Wetland
Water
Watershed Boundary
County Boundaries
Rivers
Lakes
Source: US Forest Service (2018)
0 5 10 20
Miles
N
Piedmont Triad Regional Council


High Rock Lake Watershed
Watershed Prioritization
Yadkin River
South Yadkin River
High Rock Lake
Legend
12-Digit HUC Ranking
1 - 13 (Top 10%)
14 - 32 (11 - 25%)
33 - 64 (26 - 50%)
65 - 129 (51 - 100%)
Watershed Boundary
Lakes
Rivers
County Boundaries
Municipal Boundaries
0 5 10 20
Miles
N
PIEDMONT TRIAD
REGIONAL COUNCIL
ALLEGHANY
ASHE
WILKES
WATAUGA
CALDWELL
ALEXANDER
CATAWBA
IREDELL
DAVIE
YADKIN
SURRY
STOKES
FORSYTH
ROCKINGHAM
GUILFORD
DAVIDSON
RANDOLPH
MONTGOMERY
ROWAN
CABARRUS
MECKLENBURG
ANSON
RICHMOND
Grayson
Galax
Floyd
Patrick
Henry
Franklin
Pulaski
Washington

Key Findings & Conclusions

- Highest Ranking Stressed Watershed in Urbanized Area
- Third Tier of High-Ranking Stressed Watersheds in Agricultural Areas
- Most Impaired Waters Can Be Linked to Urban or Agricultural Areas
- Multi-source Problem
- There is No Single Fix
- Similar to the Chesapeake Bay nutrient Problem
- Significant opportunity to protect sensitive areas and buffers

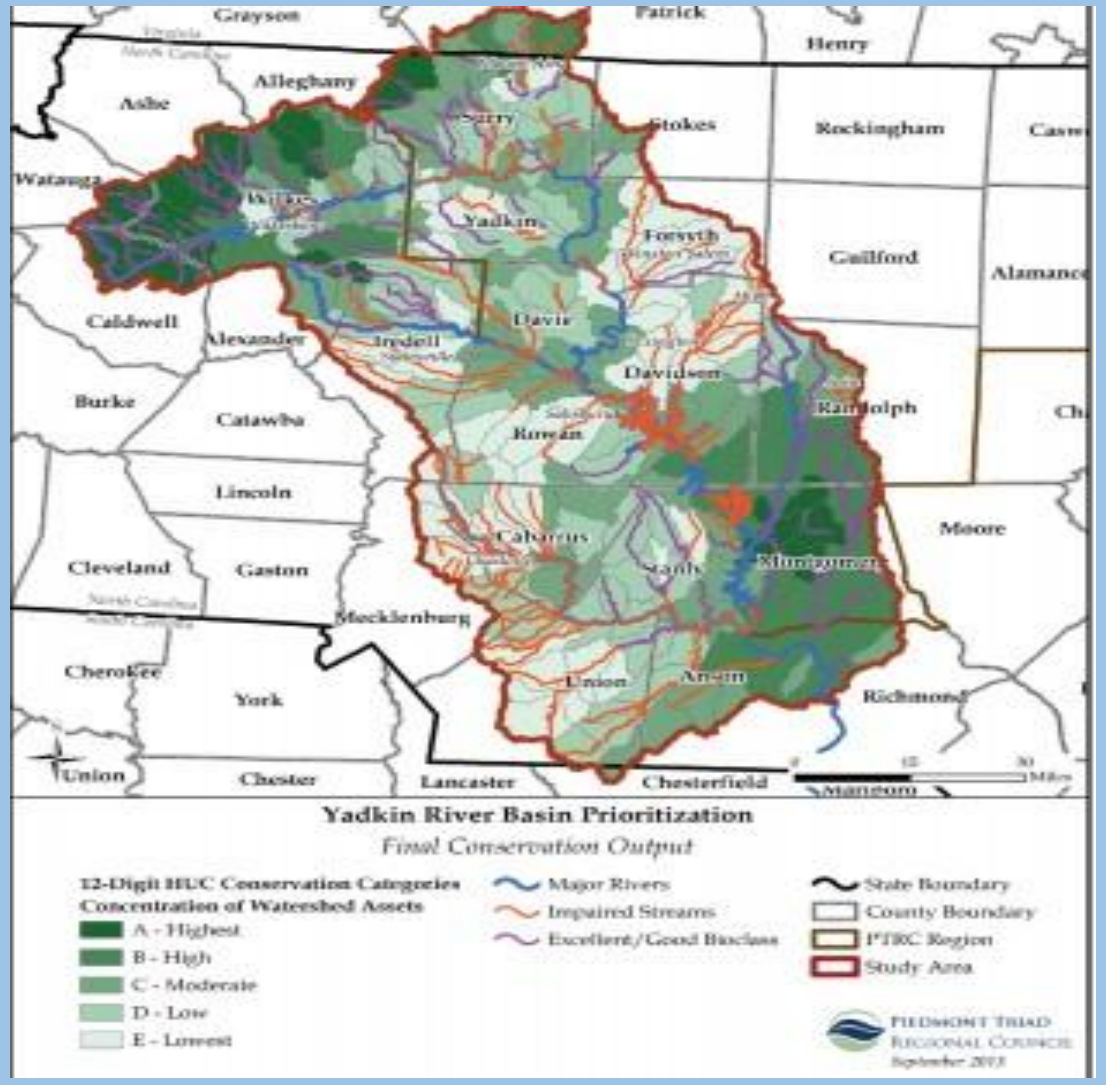
Recommendations to Reduce Nonpoint Source Pollution in the Yadkin River Watershed

- Continue the Yadkin River Watershed Protection Task Force
- Review and assess nutrient reduction strategies/US EPA Guidance
- Update High Rock Lake nutrient management strategy
- Establish and enforce new water quality standards
  - Chlorophyll-a in High Rock Lake
  - Numerical criteria for nitrogen and phosphorus
  - E. coli standard
- Siting and permitting requirements for large scale poultry operations
- Increase funding for agricultural cost share programs/best management practices (BMPs)
- Increase funding for land conservation and stream restoration projects

Tributaries Targeted for Restoration and Conservation

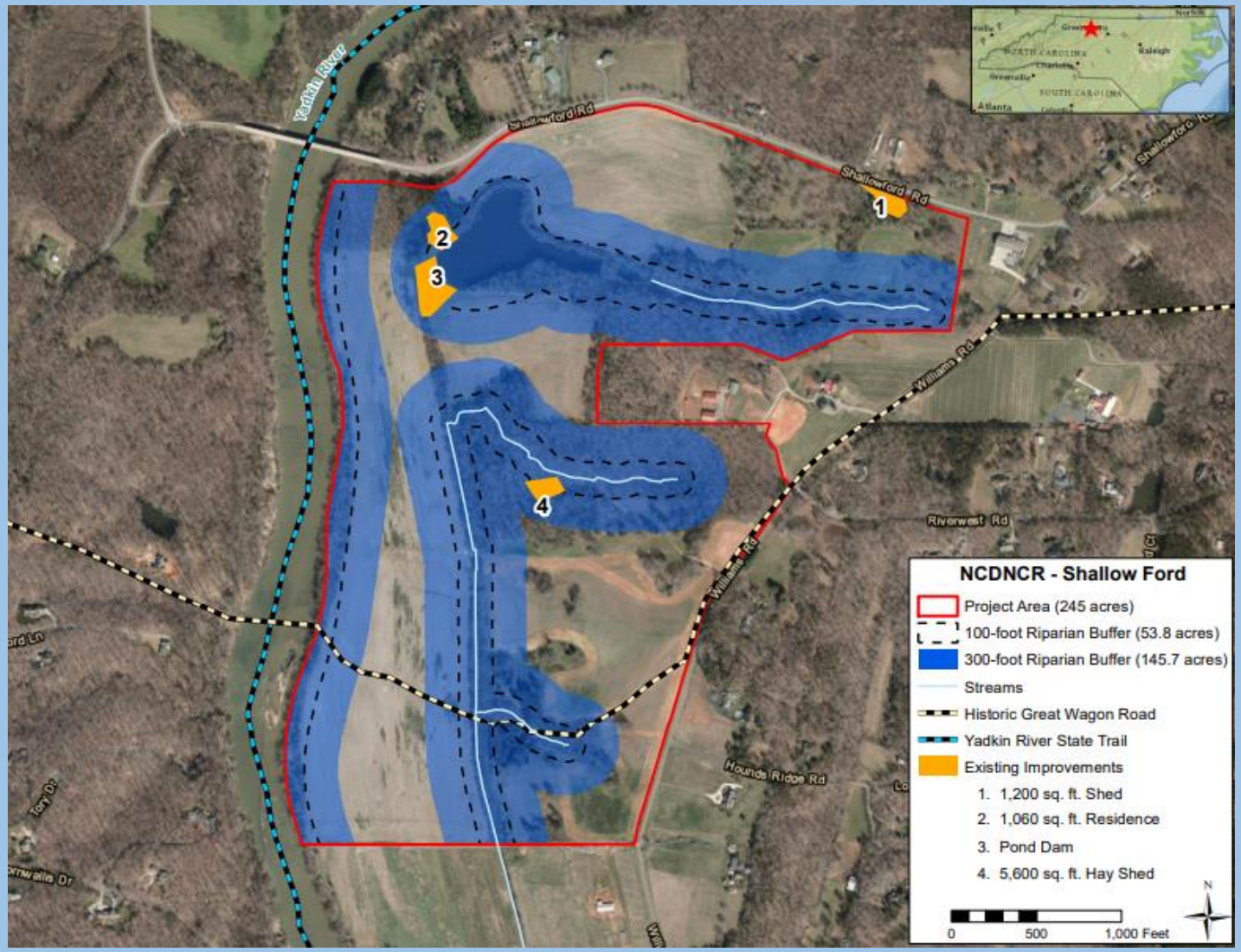
- Roaring River – Wilkes
- Big Elkin Creek – Wilkes and Surry
- Ararat River – Surry
- South Yadkin – Caldwell, Wilkes, Alexander and Iredell
- Abbotts Creek – Forsyth/Davidson
- Swearing Creek – Davidson
- Grants Creek – Rowan

Land Conservation Priorities

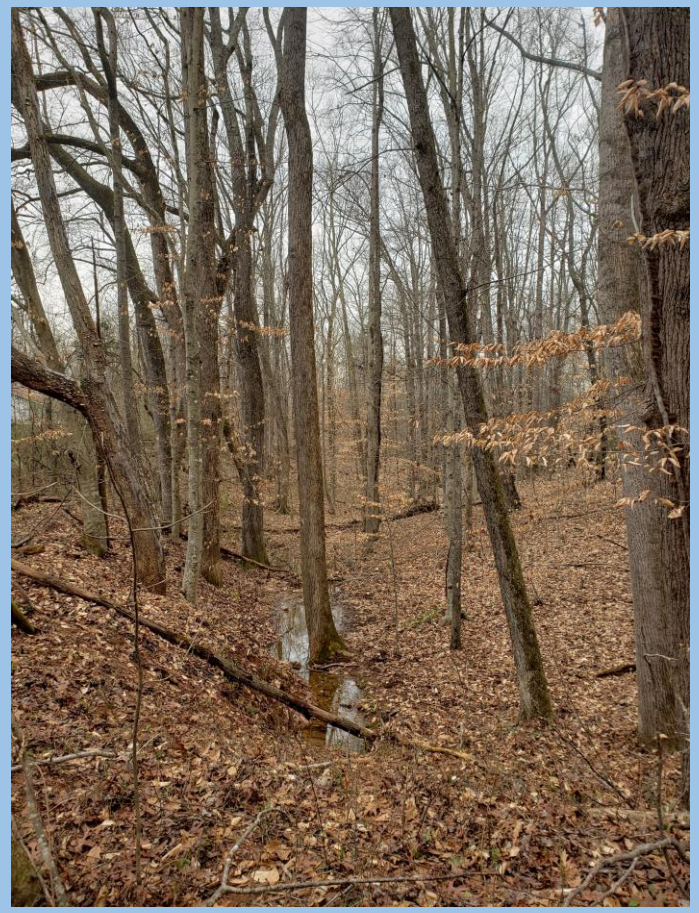


Shallowford Historic Site Acquisition-The Conservation Fund-December 2020

Shallowford Riparian Buffers/Existing Uses



Yadkin River at Shallowford – West Bend, Forsyth County



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