



NONPOINT SOURCE SUCCESS STORY

South Carolina

Ecological Restoration through Collaboration in the North Saluda Watershed

Waterbody Improved

Significant streambank erosion and water quality impairments for turbidity, macroinvertebrates, and bacteria in the Upper Saluda Watershed threaten aquatic uses and the health of drinking water sources for Greenville and Easley in upstate South Carolina. In 2019, the watershed organization, Save Our Saluda (SOS), initiated a water quality improvement program focused on installing agricultural best management practice (BMP) packages to address erosion and sediment pollution. Several project phases and significant local partnership have fostered continued implementation, and various sources of funding have been leveraged to increase the number of projects possible and reduce landowners' financial contributions. To date, BMP packages including combinations of cover crop plantings, heavy use area stabilization, streambank repair, and buffer plantings have been installed at sixteen sites. These BMPs have resulted in the reduction of 2,295.7 tons of sediment and 6.98 E+13 CFU of bacteria per year.

Water Quality Challenge

The project area has multiple impairments for turbidity, macroinvertebrates, and bacteria. The entire Upper Saluda Watershed is also under a TMDL for E. coli, and water quality standards for E. coli have not yet been attained (Figure 1). Primary sources of sediment loading in the North Saluda River include runoff from row crops, livestock farms, and severe streambank erosion (Figures 2-4). Primary sources of bacteria loading in the watershed include agricultural activities, grazing animals, and failing septic systems.

Save Our Saluda

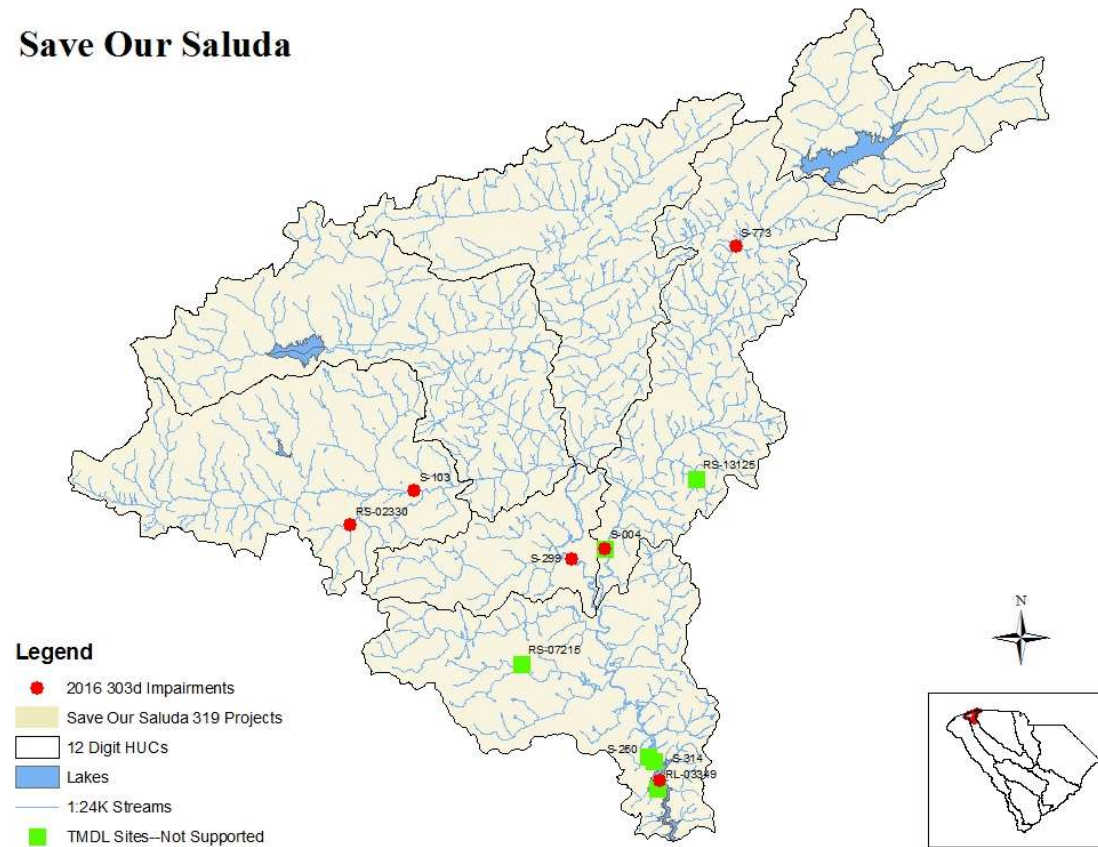


Figure 1. Project area

Project Highlights

In 2011-2012, 366,600 cubic yards of sediment were dredged from Saluda Lake at a cost of approximately seven million dollars to Easley Combined Utilities. By 2019, upper parts of the lake had refilled with sediment, and surveys indicated the dredged area of the lake was already two-thirds filled in again (Figure 5). Current sediment removal cost estimates exceed ten million dollars. Understanding the importance of a more sustainable and cost-effective approach, SOS is working to reduce sedimentation and erosion upstream in the watershed through practices such as soil conservation, cover crops, heavy use area stabilization, streambank repair, buffer plantings, and livestock exclusion from creeks (Figures 6-8), as well as educating farmers on the importance of these practices. Many of these practices also have the added benefit of reducing bacteria.

Project partnership, including cash and in-kind match, material donation, and collaboration, has significantly increased the reach of the project efforts. Combining Section 319 and Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) funding allowed funds to stretch much further (Figure 9). This approach has reduced the portion of Section 319 funds required from 60% to an average of 27% per project and

has reduced landowner contributions to as low as 1% of the total project cost. SOS recruited donations of more than 140 truckloads of blast rock, valued at over \$113,000, for use on multiple watershed restoration projects (Figures 10-11).

Participant recruitment for efforts in this watershed was initially complicated by farmland leases and language barriers. SOS overcame these challenges through personal meetings, educational workshops, and targeted bilingual outreach materials. Through time and persistence, SOS has built trust with members of the farming community, and this has led multiple landowners and operators to participate in the organization's cost-share programs.

Additionally, a crop roller/crimper and no-till seed drill were purchased to allow farmers to add cover crops to their crop rotation and to shift from conventional tillage to no-till management. These practices reduce stormwater runoff and erosion, improve water infiltration, and promote healthy soil. The equipment has been donated to the local Conservation District where it is leased to local farmers at a low cost to cover maintenance.



Figure 2. Sedimentation in the North Saluda River

Best Management Practice	Number Installed	Units	Comments
Vegetative Buffer Strips	52272	SQUARE FEET	
Water Well	2	INDIVIDUAL UNITS	
Access Road	600	FT	
Access Road	835	FT	

Alternative Water Sources	2	INDIVIDUAL UNITS
Two (2) Stage Ditches	12.5	AC
Lined Waterway or Outlet	279	SQUARE FEET
Lined Waterway or Outlet	17322	FT
Heavy Use Area Protection	1.42	AC
Heavy Use Area Protection	38740	SQUARE FEET
Riparian Herbaceous Cover	1.1	AC
Streambank & Shoreline Protection	1383	FT
Streambank & Shoreline Protection	1511	FT
Cover Crop	584	AC
Cover Crop	44.5	AC
Livestock Stream Crossing	1080	FT
Culvert Armoring	680	SQUARE FEET
Riparian Forest Buffer	9	AC
Sediment Basin	5	INDIVIDUAL UNITS
Structure for Water Control	3360	FT
Tree/Shrub Establishment	31.64	AC
Conservation Tillage	10.7	AC
Conservation Tillage	30	AC
Stream Channel Stabilization	1251	FT
Stream Exclusion Fencing	1795	FT

Results

Two phases of implementation have been completed since 2019, including eighteen types of BMPs on sixteen sites, with a third phase in progress. Completed BMPs thus far have resulted in a load reduction of 2,295.72 tons per year of sediment and 6.98 E+13 CFU of bacteria per year.

Average annual turbidity at one monitoring station within the project area shows some decline since the project began, from a seven-year high of 30.13 NTU in 2019 to a low of 7.25 in the first five months of 2025. The percent of turbidity samples exceeding state standards also shows some decline, from a seven-year high of 58.3% in 2020 to a low of 0% in the first five months of 2025 (Figures 12-13).

Five implementation projects have been completed in combination with the NRCS EQIP program. SOS has developed and maintained strong relationships with local farmers and NRCS staff, provided water quality implementation education and outreach, and assisted with conservation planning

processes to connect farmers with financial and technical assistance. Through this combination of federal funding sources, state Section 319 grants, partner match, and in-kind match, costs to landowners have been reduced, allowing for multiple significant implementation projects to be completed.



Figure 3. Erosion eliminated streambank buffers

Partners and Funding

Partner Type	Agency	Funding	Notes
Federal	CWA SECTION 319	\$1,153,487	Section 319 funding provided

			through two completed and one ongoing phases of implementation. Total match reported totals \$845,213
Federal	USDA-NATURAL RESOURCES CONSERVATION SERVICE (NRCS)	-	Environmental Quality Incentives Program (EQIP) funding, technical assistance, conservation plans, landowner recruitment, equipment and technical expertise
State	SOUTH CAROLINA RURAL WATER ASSOCIATION	-	Stakeholder meetings, public outreach, landowner recruitment
State	SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES	-	Landowner recruitment
State	SC OFFICE OF RESILIENCE	-	Stakeholder meetings
State	SC DEPARTMENT OF ENVIRONMENTAL SERVICES	-	Grant allocation and management, technical assistance
City	POWDERSVILLE WATER	-	Stakeholder meetings
Conservation District	GREENVILLE COUNTY SOIL AND WATER CONSERVATION DISTRICT (GCSWCD)	\$6,912	Cash match, in-kind match, stakeholder meetings, technical support, landowner

			recruitment, outreach support, technical assistance in equipment selection, maintenance, and rental
County	PICKENS COUNTY STORMWATER	-	Stakeholder meetings and landowner recruitment
County	GREENVILLE WATER	-	stakeholder meetings, volunteer support
County	GREENVILLE COUNTY	\$110,125	Cash match, 140 dump truck loads of donated blast rock, water quality data, technical analyses for stabilization projects, in-kind match
County	EASLEY COMBINED UTILITIES	\$127,117	Cash match and water quality data
Other	SC COUNCIL OF TROUT UNLIMITED	\$1,000	Cash match and stakeholder meetings
Other	UPSTATE FOREVER	-	Cash match through the North Saluda Restoration Fund
Other	TROUT UNLIMITED	\$4,000	Cash match, stakeholder meetings
Other	NATURALAND TRUST	-	Provided sites for agricultural

			BMP demonstrations
Other	RENEWABLE WATER RESOURCES	\$15,000	Cash match and in-kind
Other	TREES UPSTATE	\$38,198	in-kind match through tree donations, volunteers, planting materials, and staff time
Other	METROCONNECTS	\$5,000	Cash match
Other	GREEN MOUNTAIN MEADOWS	-	In-kind match
Other	DUKE ENERGY	\$20,000	Cash match
Private Sector	WSP	-	Project management, grant coordination, reporting, permitting, and stream restoration design
Private Sector	TABLE ROCK CONSTRUCTION	\$2,245	In-kind match
Private Sector	COOLER NATURAL RESOURCES MANAGEMENT & SERVICES	-	In-kind match
University/College	FURMAN UNIVERSITY	-	Water quality data, stakeholder meetings, agricultural demonstrations
University/College	CLEMSON UNIVERSITY COOPERATIVE EXTENSION SERVICE	-	Technical assistance on agricultural and forestry BMPs at community events
Other	SAVE OUR SALUDA	\$21,893	Grant management, in-kind match, staff time



Figure 4. Significant channel erosion



Figure 5. Sediment in Saluda Lake



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