2017 Grant Projects

Little River Watershed Restoration Phase II In-Stream Wetland (Grant Award: $116,736; 1/1/18-06/30/21)

The Albemarle Resource Conservation and Development Council partnered with local stakeholders to restore an 8-mile segment of the Little River in Pasquotank County. Excess sediment and nutrients from agricultural operations and residential and commercial development have negatively impacted water quality and fish habitat. The project team installed a new in-stream wetland designed to reduce pollutants by 6,000 lbs./year of nitrogen, 3,000 lbs./year of phosphorous and 12 tons/acre/year of sediment. Community outreach included field days for farmers and conservation professionals.

Jaycee Park Forested Stormwater Wetland (Grant Award: $119,255; 1/1/18-12/31/20)

Sound Rivers partnered with local stakeholders to convert an outdated and unmaintained dry detention basin into a forested stormwater wetland at Jaycee Park in Greenville, North Carolina. The forested stormwater wetland has been constructed to reduce flooding, water quality and erosion. The load reductions were estimated to be 11.8 lbs./year of nitrogen, 7 lbs./year of phosphorous, with an estimated 4.49 tons/year of sediment-reduction. Educational signage was posted to raise awareness of stormwater runoff problems and solutions for pedestrians and youth utilizing the park.

Stormwater Volume Reduction in the Town of Swansboro Municipal Complex (Grant Award: $167,397; 1/1/18-12/31/19)

North Carolina Coastal Federation partnered with the Town of Swansboro to design a new public parking lot that will connect two municipal buildings with pervious pavement and other low impact development (LID) techniques to prevent stormwater runoff from entering the White Oak River. The White Oak River is impaired due to high levels of bacteria from stormwater runoff. This project successfully resulted in the design, installation and performance of seven stormwater reduction measures including two permeable parking lots, two cisterns and three rain gardens utilizing coastal native plants for an overall reduction of 118,755 gallons for the 1yr, 24-hr storm. Project partners will hold public outreach events such as educational demonstrations, Smart Yard guidebook distributions, media tours, and create a stormwater curriculum for local middle and high schools.

Upper McDowell Creek Stream Restoration – Willow Pond to JV Washam Elementary (Grant Award: $200,000; 7/18/18-7/31/21)

The Town of Cornelius partnered with Charlotte Mecklenburg Storm Water Services to implement a stream corridor improvement

project for approximately 1,600 feet of 2 tributaries of McDowell Creek that are listed as impaired. The estimated load reduction is 387 lbs./year of nitrogen, 101 lbs./year of phosphorous, and 221 tons/year of sediment. There will be educational opportunities for the students of JV Washam Elementary and a greenway linking the downtown area of Cornelius with the Washam Potts Road area.

UNC Chapel Hill Outdoor Education Center Pond Retrofit (Grant Award: $198,856; 1/18-06/31/21)

The University of North Carolina at Chapel Hill will partner with local stakeholders to retrofit a former golf course pond at the UNC Outdoor Education Center to a stormwater wetland, reducing downstream phosphorus, nitrogen, and sediment loading into Chapel Creek and the impaired section of Morgan Creek. The project will also pre-treat runoff from a parking lot in the pond's watershed with a modified sand filter. Estimated load reductions include 45.5 lbs./year of nitrogen, 14.5 lbs./year of phosphorous, and 10 tons of soil saved. Educational signage will be put in place to educate visitors on the water quality benefits.

Reducing Non-Point Sources of Pollution and Improving Water Quality in the Lick Creek Watershed (Grant Award: $143,050; 1/1/18-6/30/21)

East Carolina University partnered with local stakeholders to stabilize eroding segments of tributary streams to Lick Creek in Durham and Wake County. Stormwater runoff controls were implemented including rainwater harvesting, rock check dams, drainage way bioreactors, and septic improvements to reduce nutrient, pathogen and sediment transport. The load reductions were estimated to be 43 lbs./year of nitrogen, 5.4 lbs./year of phosphorous and approximately 10 tons of soil was saved. Field tours and educational brochures will be given to the public and project information will be used in ECU's various environmental science curriculums.

Ivy River Partners- BMP Installation Project (Grant Award: $333,850; 1/1/18-07/31/21)

Mountain Valleys Resource Conservation & Development partnered with local stakeholders to identify sources of pollution, repair failing septic systems and construct best management practices (BMPs) that help landowners protect their land from erosion and improve stream conditions for the Ivy River Watershed in Madison and Buncombe Counties. The estimated load reductions are 1,262 lbs./year of nitrogen, 1,332 lbs./year of phosphorous and 175.95 tons/year of soil saved. Several educational events were held such as Kids in the Creek, Shade Your Stream Workshops, litter cleanups, public presentations, newsletters and published articles.

Implementing the Next Phase of the Bradley and Hewletts Creeks Watershed Restoration Plan (Grant Award: $96,545.80; 1/1/19- 9/30/19)

Clean Water Act Section 319 Grant
North Carolina

The North Carolina Coastal Federation partnered with local stakeholders to reduce bacteria in the Bradley and Hewlett's creeks and their adjacent estuarine waters by installing a retrofit project at the New Hanover County Arboretum in Wilmington. The estimated reduction of stormwater runoff entering those waters is 14,000 cubic feet during a two-year storm. Federation will partner with the Arboretum and NCSU Cooperative Extension Services staff and volunteers to assist with planting and outreach including educational signage, community events and demonstrate the water quality benefits created from the project during existing educational programs.

Development of Custom Model Code to Simulate Loading from Additional Types of Onsite Wastewater Treatment Systems (Grant Award: $23,500; 06/19/2020-06/30/2021)

The Upper Neuse River Basin Association (UNRBA) partnered with the NC Department of Environmental Quality to upgrade the Watershed Analysis Risk Management Framework (WARMF) graphical user interface and simulation engine to allow for greater flexibility in the simulation of onsite wastewater treatment systems. Model inputs were based on a combination of literature review and water quality data collected in the Falls Lake watershed. Testing of the WARMF graphical user interface and simulation engine showed the revised model code interfaces properly with the full model code. This improvement to the model allows for an expanded set of model scenarios related to nutrient management to identify feasible options for improving water quality in Falls Lake.

A Paired-Watershed Approach to Evaluate the Influence of Onsite Wastewater Nutrient Inputs to Falls Lake, NC (Grant Award: $111,829; 07/07/2020-08/31/2021)

East Carolina University's Department of Coastal Studies and the NC Department of Environmental Quality partnered together to quantify the influence of onsite wastewater inputs on nutrient loading to Falls Lake, which is impaired due to turbidity, dissolved oxygen, pH and temperature. Wastewater, groundwater, and soil water nutrient concentrations were monitored at 4-5 sites at various septic systems around Wake, Durham, Orange, Granville, Person, & Franklin Counties. Surface water quality sampling was also conducted bi-monthly for 1 year to compare the influence of wastewater management approaches on nutrient surface water quality. Project outputs included estimates of nutrient loading from onsite wastewater systems based on system density for the Falls Lake watershed, onsite wastewater nutrient attenuation factors, a project report documenting the field study, a journal article, a presentation to NCDEQ and UNRBA, and a presentation at a scientific conference. Students from East Carolina University were also able to participate in the project implementation and learn about the project during class lectures.

Developing an Estimate of Needed Nutrient Load Reductions for Jordan Lake Using a Three-Dimensional Water Quality Model (Grant Award: $117,396; 10/26/2020-8/31/2021)

UNC Charlotte's Civil and Environmental Engineering Department estimated the nutrient load reduction needed to eliminate the violations of the existing chlorophyll-a criteria in Jordan Lake in Chatham County. The project used an existing three-dimensional Jordan Lake water quality model as a starting point for development and scenario testing. Improvements were made on the current model by using station-by-station comparisons of time histories at eighteen stations in the Haw River and New Hope Creek arms of the lake. The finished model is a component in a package of analysis tools that can be used by the DWR for efficiently and effectively managing the Jordan Lake watershed to improve water quality.