

ANDERSON & PICKENS COUNTIES stormwater PARTNERS



Annual Report of Activities

YEAR 8 / JANUARY - DECEMBER 2021

MARCH 2022



COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

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Acronyms Used In This Report

| ACRONYM | FULL WORDING | ACRONYM | FULL WORDING |
|---------|--|---------|--|
| APCSP | Anderson & Pickens Counties Stormwater Partners | MEP | Maximum Extent Practicable |
| ARJWS | Anderson Regional Joint Water System | NPDES | National Pollutant Discharge Elimination System |
| ASWCD | Anderson County Soil and Water Conservation District | PC | Pickens County |
| BMPs | Best Management Practices | PCBEAC | Pickens County Beautification and Environmental Advisory Committee |
| CAFLS | Clemson University College of Agriculture, Forestry, and Life Sciences | POC | Pollutants of Concern |
| CEPSCI | Certified Erosion Prevention and Sediment Control Inspector | PSWCD | Pickens County Soil and Water Conservation District |
| CSPR | Cetified Stormwater Plan Reviewer | SC | South Carolina |
| CU | Clemson University | SC AAS | South Carolina Adopt-a-Stream |
| CY | Clemson Extension Carolina Yards | SC ETV | South Carolina Educational Television |
| EFNEP | Expanded Food and Nutrition Education Program | SCASM | South Carolina Association of Stormwater Managers |
| FDSC | Florence Darlington Stormwater Consortium | SCBG | South Carolina Botanical Gardens |
| FOG | Fats, Oils and Grease | SCDHEC | South Carolina Department of Health and Environmental Control |
| FOLKS | Friends of Lake Keowee Society | SCDOT | South Carolina Department of Transportation |
| HGIC | Home & Garden Information Center | SDPC | School District Pickens County |
| HOAs | Home Owners Associations | SMS4s | Small Municipal Separate Storm Sewer Systems |
| IECA | International Erosion Control Association | TMDLs | Total Maximum Daily Loads |
| LHPCW | Lake Hartwell Partners for Clean Water | TTB | Traveling Trash Bash |
| LID | Low Impact Development | UPIC | University Professional Internship and Co-op Program |
| LKSWPT | Lake Keowee Source Water Protection Team | WOW Jr. | What's In Our Waters Jr. |
| MCMs | Minimum Control Measures | | |

Executive Summary

The Anderson & Pickens Counties Stormwater Partner’s (APCSP) Year Eight Annual Report of Activities summarizes education, involvement, and participation programming offered in 2021. APCSP community and education partners work together to implement a region-wide outreach strategy that educates residents on water quantity, quality, and the cumulative impacts of stormwater. As a public service of Clemson University, APCSP continued to serve South Carolina while observing COVID-19 precautions for employees and the public. County agents and staff assisted clients through telephone, email, and virtual platforms, as well as in-person workshops, outdoor events, and field visits, conducted under strict adherence to established protocols. Access to Clemson lab services (such as soil and irrigation water sampling) remained in place.

Programming is guided by our strategic education plan, a living document that identifies target pollutants of concern (POC), outreach strategies, and short to long-term goals. A plan was created in 2014 using the 303(d) List of Impaired Waterbodies, Total Maximum Daily Loads (TMDLs), workshop and event surveys, and feedback from citizens and stormwater professionals in the region. Using this input, POC were identified as bacteria from animal waste; sediment and erosion; and fats, oils, and grease (FOG). Litter was added as a target pollutant in 2015. Input from partners at the June 18, 2018, strategic planning meeting generated an updated plan describing our top three POC (sediment, litter, and bacteria), behaviors that contribute to the pollutant load of waterways, and actions APCSP would take to educate and engage our target audiences to reduce non-point source pollution from stormwater runoff. The education plan and associated timeline can be found in the Appendix.

In 2021, APCSP continued to employ virtual formats to deliver online content through social media posts, fact sheets, blogs, e-news, videos, webinars, and virtual workshops. In-person programs and field days were conducted, and educational and outreach materials were developed and distributed. Topics included: South Carolina Adopt-a-Stream (SC AAS); septic systems and pet waste; FOG; reducing waste, litter, and stormwater pollution; recreational and stormwater pond management; erosion and sediment control; and home and farm water management. Additionally, in partnership with Clemson Extension, APCSP staff played a significant role in managing and delivering compliance-based trainings (Certified Erosion Prevention and Sediment Control Inspector; Certified Stormwater Plan Reviewer), and hybrid trainings (Post-Construction BMP Inspector and Master Pond Manager) statewide.

In 2022, our ninth year of strategic plan implementation, APCSP will continue to expand programming and partnerships for sediment, litter, and bacteria to our target audiences: educators/youth, residential communities, and professional/technical audiences.



Steven O'Shields
Anderson County



Haley Parent
Clemson University



Susan Lunt
Pickens County

Steven O'Shields, Haley Parent, and Susan Lunt are Water Resources Agents for the Clemson Cooperative Extension Service. As part of their work with the Carolina Clear program, they co-coordinate the Anderson & Pickens Counties Stormwater Partners.



2021 Highlights

- APCSP experienced continued success with virtual programming in 2021 and expanded its offerings to continue reaching citizens of South Carolina while adhering to COVID-19 protocols. Via synchronous and asynchronous online training, educational videos, social media, and webinars, information was delivered on various topics like erosion prevention and sediment control, water quality monitoring, rain chains, and litter prevention and clean up.
- Both new and existing partnerships allowed programs to thrive in Anderson and Pickens Counties. APCSP reached various audiences through presentations given on numerous topics, including septic systems, lot erosion control measures, stormwater best management practices (BMPs), rainwater harvesting, water quality, watersheds, environmental stewardship, citizen science, recreational and stormwater ponds.
- During COVID-19, our mass media campaign and demonstration sites throughout the region continued to be observed. Citizens gained knowledge about FOG management through billboard messaging, and about rain gardens, bio-retention cells, floating wetlands, rain barrels, storm drain markings, and shoreline plantings through the demonstration sites. Both encourage best management practices for protecting water quality.

OUTREACH ACTIVITIES AND TOTAL NUMBER REACHED (*estimated*)

1. Internet Resources including social media pages, youtube, videos, and websites.
NUMBER REACHED: 379,865
2. Mass Media including television and billboards.
NUMBER REACHED: 556,142
3. Permanent Demonstration Sites across the region demonstrating diverse best management practices for protecting water quality.
NUMBER REACHED: 2,193
4. Education & Outreach Materials including publications, brochures/rack cards, manuals, and giveaways.
NUMBER REACHED: 19,850
5. Diverse Array of Public Workshops, presentations, trainings, site visits & samples, and direct contacts pertaining to stormwater.
NUMBER REACHED: 3,664
6. Public Involvement opportunities including water quality monitoring, litter pickups, community partner meetings, BMP maintenance & installations, hybrid courses, rain barrel sales, and storm drain marking.
NUMBER REACHED: 717

2021: A Year in Pictures



Student learning how to measure the turbidity of a stormwater pond as part of Clemson Extension's Master Pond Manager course.



CU students & staff installing plants in a bioretention cell as part of Solid Green Day at Clemson University.



CU students learning about water quality monitoring protocols for the South Carolina Adopt-a-Stream program.



Local residents picking up their rain barrels as part of Anderson & Pickens Counties Stormwater Partners' annual rain barrel sale.

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Promoting the Carolina Yards program at the South Carolina Botanical Gardens 2021 fall plant sale.

The Small Municipal Separate Storm Sewer Systems (SMS4s) community partners in Anderson and Pickens Counties are dedicated to providing stormwater education. The partners work together to better facilitate the development of a unified approach to stormwater education and outreach throughout our region.

Local SMS4 Consortium Representatives: 2021

| SMS4 | Partner Representative |
|--------------------|----------------------------------|
| Anderson County | Jon Batson |
| City of Anderson | Adam Cromer |
| City of Belton | Bo Barnes |
| City of Clemson | Nathan Hinkle and Ethan Barnette |
| City of Easley | Darya Cowick |
| City of Liberty | Mike Calvert |
| City of Pickens | Philip Trotter |
| Clemson University | Billy Bolger |
| Pickens County | Scottie Ferguson |
| Town of Norris | Mayor Odell Williams |





The education partners include agencies, organizations, and individuals that share an interest in educating the public about stormwater and water quality. These educational partnerships ensure a uniform and consistent message while leveraging valuable resources, organizational strengths, and collaborations. APCSP is grateful to all of the partners and to the citizens of Anderson and Pickens Counties who are helping to keep our waterways clean and beautiful.

2021 Education Partners



Mission and Goals

APCSP MISSION STATEMENT

To develop and implement a broad-based education program that informs citizens about the issues of stormwater management and explains the role they and the business community can play in solving these issues.

PROGRAM GOALS

- Maximize efficiency of stormwater education efforts using a countywide regional approach.
- Help local SMS4s meet National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Program permit requirements for stormwater education and involvement by providing educational resources and services such as public education, outreach and community involvement.
- Develop a comprehensive stormwater education plan for the region that capitalizes on local training resources to meet the needs of local SMS4s.
- Serve as a model for collaborative stormwater education.

SMS4 PERMIT REQUIREMENTS

SMS4s are expected to reduce pollutants to the maximum extent practicable (MEP) through six minimum control measures (MCMs):

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge, Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

APCSP is a collaboration between local governments and education partners who work together to address MCMs 1 & 2.



**STATE OF SOUTH CAROLINA
NPDES GENERAL PERMIT
FOR
STORM WATER DISCHARGES
FROM
REGULATED SMALL MUNICIPAL
SEPARATE STORM SEWER SYSTEMS (SMS4)**

The Permit is issued in compliance with the provisions of the SC Pollution Control Act (S.C. Code Sections 48-1-10 *et seq.*, 1976) and with the provisions of the Clean Water Act, 33 U.S.C. §1251 *et. seq.*, (hereafter CWA or the Act), as amended by the Water Quality Act of 1987, P.L. 100-4 and subsequent regulations. Upon being granted coverage under this general permit, operators of Regulated Small Municipal Separate Storm Sewer Systems that are described in Subpart 1.2 of this National Pollutant Discharge Elimination System (NPDES) general permit, except for those activities excluded from authorization of discharge in Subpart 1.3 of this permit, are authorized to discharge storm water to waters of the state of South Carolina in accordance with the conditions and requirements set forth herein.

Ann R. Clark, Director
Storm Water, Construction, Agricultural and Dams Permitting Division
Bureau of Water

Permit No.: SCR030000

Issued: November 1, 2013

Effective: January 1, 2014

Expires: December 31, 2018

Program History



To meet the APCSP program goals, education and programming priorities were identified and highlighted through the APCSP Education Plan 2018-2023. The Education Plan was created with input from partners at a strategic planning meeting on June 18, 2018 at the Department of Natural Resources facility in Clemson, SC. Partners included city and county staff and a council member, representatives from non-profits, Clemson University staff and students, and Clemson Extension agents. Input included prioritizing pollutants of concern, developing a list of contributing behaviors, and brainstorming barriers and benefits for each behavior.

As identified in the Education Plan, the top three pollutants of concern (POC) and their contributing behaviors are as follows:

| Pollutant of Concern | Contributing Behaviors |
|----------------------|---|
| Sediment | <ul style="list-style-type: none"> • Construction companies who do not properly install and maintain BMPs for erosion prevention and sediment control are contributing sediment to the local waterways. • Homeowners with sediment issues who do not properly install and maintain BMPs are contributing sediment to local waterways. |
| Litter | <ul style="list-style-type: none"> • People who contribute to roadside littering or improperly dispose of household items. • People who dump their trash illegally in business dumpsters, causing them to overflow. |
| Bacteria | <ul style="list-style-type: none"> • Septic systems that are not properly maintained/repared. • FOG (fats, oils, and grease) that are not disposed of properly. • Dog owners who don't pick up and dispose of their pet waste. |

The Education Plan addresses these priority issues and serves as the guiding force for efforts of the Anderson & Pickens Counties Stormwater Partners. The complete Education Plan and timeline can be found in the Appendix and online at: www.clemson.edu/extension/carolinaclear/regional-consortiums/apcsp.

South Carolina Adopt-a-Stream

South Carolina Adopt-a-Stream (SC AAS) is a program developed and coordinated in partnership between the South Carolina Department of Health and Environmental Control (SCDHEC) and Clemson University's Center for Watershed Excellence. Certified volunteers collect water quality data on chemical, bacterial, and biological parameters and assess stream habitat conditions.

Anderson and Pickens Counties are two of the most active counties in South Carolina using SC AAS. Since the start of the program in July 2017, there have been 1030.75 volunteer hours spent collecting and recording water quality data, 6591.5 miles driven to sample locations, and 610 monitoring events across 77 sites in the Anderson/Pickens area.

In 2021, APCSP worked with various groups to promote SC AAS. Activities included: sampling with students, residents, and other interested citizen scientists; hosting volunteer training events; and working with SCDHEC and Clemson's Center for Watershed Excellence to improve the program. APCSP also helped obtain grant funding from Duke Energy in the amount of \$3,450 to expand the SC AAS program in the Lake Hartwell Watershed.

In 2021, 219.5 volunteer hours were spent collecting and recording water quality data, 1,483.8 miles were driven to sample locations, and 91 monitoring events occurred across 28 sites in the Anderson/Pickens area.



Master Pond Manager

In the Fall of 2021, APCSP hosted over 30 participants for Clemson Extension’s Master Pond Manager (MPM) course. The MPM hybrid course teaches participants a wide range of pond management knowledge and skills through online and face-to-face learning. Stormwater and recreational pond field days were held on October 25 & 26 at the Madren Conference Center, Walker Golf Course, and South Carolina Botanical Gardens in Clemson, SC. Topics included pond design, permitting, construction, inspection, and maintenance; integrated aquatic plant management; limnology and water quality; best management practices; dam maintenance; wetland delineation; and fish management. Individuals participated in many hands-on activities related to the topics above, including installing a shorescape and floating wetlands at the SC Botanical Gardens. Field day instruction was conducted by Water Resources Agents (WRA) and Clemson Extension Specialists from across the state.



Installation of Floating Wetland



*APCSP
Water Resource Agents*



Installation of Shorescape



*Haley Parent & Steven O’Shields
Instructing Students on Water Quality*



*Students Using a
Secchi Disk*



*Susan Lunt Instructing
Students on Floating Wetlands*

New Resources & Publications

In 2021, Clemson Extension and APCSP developed and published numerous new resources. Below are selected examples.

Rack Card: Maintaining Ditches

MAINTAINING DITCHES TO PREVENT FLOODING

Roadside ditches help prevent flooding in our community by moving stormwater away from yards, homes, and businesses. Yard debris, trash, and sediment can clog ditches and cause these stormwater conveyance systems to fail. In South Carolina, stormwater is transported by pipes, culverts, and ditches and discharged into a nearby water body. Stormwater runoff picks up pollutants like motor oil, sediment, pet waste, and fertilizers, which negatively impact local water quality. Properly maintained ditches can help reduce flooding and help to protect clean water in your community.

Tips for Maintaining Ditches:

- Remove yard debris and litter that might clog ditches, especially before and after storms.
- Do not place bagged leaves in ditches.
- Do not fill in ditches.
- Remove any sediment that accumulates over time.
- Do not burn yard debris in ditches.
- Avoid driving or parking in ditches.

Tips for Protecting Downstream Water Quality:

- Do not remove or kill grass in ditches; grass helps keep the soil in place and minimize erosion.
- Keep oil, paint, pet waste, and septic waste out of ditches.
- Before a rain event, do not apply fertilizers or pesticides to the surrounding landscape.
- Keep any landscaping other than turf grass above the ditch channel to avoid obstructing water flow.

Frequently Asked Questions:

- Who owns the drainage ditch in my yard?** Check your property plat for easements with the local municipality, county, or transportation departments.
- Who maintains the drainage ditch in my yard?** If there are no easements, the landowner is often responsible for basic maintenance. In some communities, it may be against the law to modify or obstruct ditches.
- Who should I call if I have a problem with my drainage ditch or culvert?** Start with the public works department for your local municipality or county office.

Clemson University Cooperative Extension Service offers its programs in partnership with the South Carolina Department of Agriculture, South Carolina Department of Transportation, South Carolina Department of Environmental and Natural Resources, and the South Carolina Department of Health and Human Services.

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Rack Card: Construction Lot Erosion Control

LOT EROSION CONTROL MEASURES FOR CONSTRUCTION SITES

DO's & DON'Ts

- DO's:**
 - CONSTRUCTION ENTRANCE: Stone cover that's shoddy, impresses nobody.
 - INLET PROTECTION: Put the "pro" in protection.
 - CONCRETE WASHOUT: Keep your reputation as solid as concrete.
- DON'Ts:**
 - FAILING SILT FENCE: If it's flappin' it ain't trappin'.
 - UNMAINTAINED CONSTRUCTION ENTRANCE: Stone cover that's shoddy, impresses nobody.
 - FAILING INLET PROTECTION: Put the "pro" in protection.
 - UNMAINTAINED CONCRETE WASHOUT: Keep your reputation as solid as concrete.

Please see the above QR codes for specifications associated with each listed BMP.

Erosion control can be easy. What you can do: generate existing tree and grass, revegetate the site as soon as possible, use silt fence, place silt piles away from roads and walkways, create diversions on slopes and around structures, establish erosion control access, clean sediment carried off-site by vehicles and stores, install inlet protection, use and maintain concrete washouts, and use temporary controls.

Clemson University Cooperative Extension Service offers its programs in partnership with the South Carolina Department of Agriculture, South Carolina Department of Transportation, South Carolina Department of Environmental and Natural Resources, and the South Carolina Department of Health and Human Services.

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Land-Grant Press

Pond Weeds: Causes, Prevention, and Treatment Options

Heather B. Nix - Clemson University Cooperative Extension, Water Resources Program
Stacy Lunt - Clemson University Cooperative Extension, Water Resources Program
Rebecca H. Davis - Clemson University Cooperative Extension, Water Resources Program

Excessive aquatic plant growth is a common complaint and may interfere with desired uses of ponds. Phosphorus and nitrogen typically drive aquatic plant growth, which may persist while nutrient levels remain elevated. This publication will assist landowners, pond managers, farmers, producers, and municipalities with (a) land-based actions throughout the watershed can reduce external nutrient and sediment loadings, and (b) in-pond actions to assist in managing plant growth, slowing the release of nutrients, and encouraging more sustainable conditions. Additional Land-Grant Press pond publications are available at <https://clemson.edu/ponds>, [Ponds in South Carolina](https://clemson.edu/ponds) (led by LG PondSAC), [Recreational Ponds in South Carolina](https://clemson.edu/ponds) (led by RePondSAC), and [An Introduction to Stormwater Ponds in South Carolina](https://clemson.edu/ponds) (led by StormPondSAC).

Introduction

A "healthy" pond contains a variety of plant species that may cover about 20% of the surface.¹ Unless they are rapidly expanding or particularly problematic, the plants are likely providing benefits, including habitat for fish and other organisms, stabilization of soils, and uptake of the nutrients in the water. Rapid or excessive aquatic plant growth is a common concern and can interfere with the intended uses of a pond.

Excessive plant growth is a symptom of a pond's underlying high nutrient levels.² Nutrients are essential, but high levels (especially phosphorus) will encourage excessive plant or algae growth in freshwater systems.³ Nutrients are often carried from land into waterways, so actions on the land that drain into the pond have a tremendous influence on conditions within the pond. Common sources of nutrients include fertilizer, soil erosion, sewer overflows or leaks, improperly functioning septic tanks, and animal waste (figure 1).⁴

Pond management begins with preparation. First, identify your main goals and uses for the pond. Then develop an integrated plan to determine cost-effective strategies for meeting those goals. The plan should include (1) land-based actions to protect your pond, (2) in-pond practices to manage problems, and (3) aquatic weed identification to determine efficient treatment options.

Land-Based Solutions to Protect Your Pond

It is often less work to prevent nuisance weeds from establishing than to control them.⁵ Reducing the source(s) of nutrients entering the pond and implementing best management practices is critical to managing nuisance weeds. Evaluating the land surrounding your pond may identify sources of pollutants. Additional tools, such as [SCDHIC's Watershed Atlas](https://clemson.edu/watershed) (go.dhec.gov/watershed), provide a variety of information that may help identify probable sources of pollutants to waterways. Some best management practices to consider include

Land Grant Press Article: Pond Weeds

BE SEPTIC SAFE

Maintain your septic system with regular inspections and avoid cloggers and killers in the tank.

DON'T DUMP DOWN THE DRAIN!

- ✗ Cloggers:**
 - ✗ Cat litter
 - ✗ Cigarette filters
 - ✗ Coffee grounds
 - ✗ Diapers
- ✗ Killers:**
 - ✗ Fats, Oil & Grease
 - ✗ Paper towels
 - ✗ Sanitary products
 - ✗ Wipes
 - ✗ Chemical drain opener
 - ✗ Chemicals
 - ✗ Medications
 - ✗ Paints & Thinners

Task was last serviced:

Date _____

Company _____

Phone/Email _____

For more info and to sign up for email reminders to inspect system: www.clemson.edu/extension/water/be-septic-safe.html, or scan the QR code



Magnet:
Be Septic Safe

Home & Garden Information Center

REPURPOSING YOUR OLD "LIVE" CHRISTMAS TREE TO BENEFIT WILDLIFE

Published: 10/18/2021

After the holiday season, many residents are left wondering what to do with their discarded "live" Christmas tree. There are several options to repurpose your tree to benefit wildlife, your yard, and even your pond.

The first step in repurposing your Christmas tree is to remove metal ornaments, or any other synthetic materials that have been applied to the tree. The recommendations in this factsheet do not apply to artificial trees. These trees are made of plastic and metal, which do not decompose in a way that benefits wildlife and can potentially cause harm to the local wildlife.

In the Yard

Living habitats require food, water, and shelter. Adding an old Christmas tree to your yard or pond will enhance the natural environment by complementing an existing habitat and adding several benefits:

- Organic matter is added to the land through decomposition, providing additional nutrients in the soil, which help to enhance plant growth and benefit wildlife.
- Provide shelter and shade, critical components to healthy habitats.
- Help the birds benefit in winter; increased shade reduces the amount of water evaporating from the soil.

Rubber mulch by allowing from water movement (either by planting the tree or laying the entire tree on the ground).

Re-Plant or Insect

If your tree will fit into a hole and a hole is a live tree. To determine if the tree will thrive in the chosen site conditions, assess if the right place for the right place. HGIC 1786, [Selecting a Christmas Tree](https://www.clemson.edu/extension/hgic/1786), provides information on the most commonly found trees in South Carolina. The species that are most commonly found in South Carolina, however, have been transported from out of the region. Of the trees listed from the previously mentioned checklist, these trees have the best chance of flourishing in South Carolina: Austrobaileya, Blue Cypress, Blue Cypress, Blue Cypress, and Clemson Greenery, Double Cedar, Eastern Red Cedar, Pine (Eastern White, Scotch, and Virginia), Leyland Cypress, and Monterey Cypress. Information regarding the best growing conditions for each species should be found on the Carolina Yards Plant Database. HGIC 1803, [Planting Trees Correctly](https://www.clemson.edu/extension/hgic/1803).

A tree without roots can still be planted to attract wildlife, but do not expect it to grow. A standing dead tree, called a snag, can provide habitat or food to many wildlife species. From ravens and squirrels to birds and beneficial insects and everything in between. The tree will or without the hull and roots can be utilized as a habitat for organisms both on land and in water. To make the repurposed tree more attractive to wildlife, establish the tree with mulches coated in peanut butter, or hang seat, cone, or birdhouse ornaments made with natural materials. The snag should be planted far away from vehicles or play areas for children and pets as the decomposing tree will eventually fall.

Laying a dead tree on the ground will deliver many of the same benefits as planting well. Digging holes in the tree and placing it directly on its side will speed up the decomposition process. A few items to remember when placing the tree:

- Do not place the tree atop or in the proximity of a septic system; trees should be planted as far away from the septic system as they are tall or mature.

<https://hgic.clemson.edu/factsheet/repurposing-your-old-live-christmas-tree-to-benefit-wildlife/>

HGIC Factsheet: Repurposing Christmas Trees

Clemson Extension: 2021 Hybrid Trainings



Floating Wetland Installation

Clemson Extension’s hybrid training model delivers in-depth information and applied knowledge opportunities through multi-week online training courses. Combined with a field component, each course provides students with a hands-on learning opportunity and the chance to apply skills learned. The overall objective of these courses is to empower participants to design, manage, and maintain stormwater best management practices in South Carolina communities and beyond.



Rain Garden Installation

Clemson Extension’s Water Resources Team currently offers three hybrid trainings which are described below. In the face of COVID-19, the hybrid training programs were well suited to deliver in-depth information to technical, professional, and residential audiences. In total, 248 individuals participated in hybrid trainings in 2021.

Master Pond Manager: This course teaches participants a wide range of management knowledge and skills for both stormwater and recreational ponds.

Master Rain Gardener: This course provides design standards and the knowledge-based skill set necessary to design and install rain gardens and rainwater harvesting systems.



Bioswale BMP Inspection

Post-Construction BMP Inspector: This course covers stormwater best management practices and how to properly inspect and maintain stormwater control structures post-construction.

Learn more at clemson.edu/extension/water/hybrid-training.

stormwater PARTNERS 2021 Highlights



Webinars

In 2021, Clemson Extension and Anderson & Pickens Counties Stormwater Partners developed and presented numerous webinars to residents, professionals, and Clemson University staff. Below are selected examples.

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

WATER MANAGEMENT IN THE HOME LANDSCAPE
Being a Neighbor for Clean Water Webinar Series 2021

Kim Morganello
Clemson Extension
Water Resource Associate
Charleston

Haley Parent
Clemson Extension
Water Resource Agent
Clemson Campus

Being a Neighbor for Clean Water Series

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

BE SEPTIC SAFE WEBINAR

Beatriss Calhoun
Water Resources Agent
Charleston County
beatriss@clemson.edu
843-722-5204

Ellen Sturup Comeau
Water Resources Agent
Beaufort County
ecomeau@clemson.edu
843-473-6023

Susan Lunt
Water Resources Agent
Pickens County
slunt@clemson.edu
864-898-8324

Charly Greenthaler
Water Resources Agent
Lexington County
charlym@clemson.edu
803-520-1679

Kim Morganello
Water Resources Associate
Carolina Clear Coordinator
kcourt@clemson.edu
843-730-5212

<https://www.clemson.edu/extension/water/be-septic-safe.html>

Be Septic Safe Series

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

BECOMING THE SOLUTION TO "PEOPLE POLLUTION"
An Overview of Stormwater Education, Outreach, and Public Involvement at Clemson University

Haley Parent
Water Resource Agent
Clemson Extension

ANDERSON & PICKENS COUNTIES
Carolina CLEAR stormwater PARTNERS
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CU Emeritus College Seminar Series

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

FARMING FOR CLEAN WATER IN SOUTH CAROLINA
An Overview of Best Management Practices for New and Beginning Farmers

Susan Lunt
Water Resources Agent
Pickens County
slunt@clemson.edu
864-898-8324

Heather Nix
Water Resources Agent
Upstate Region
nixh@clemson.edu
864-365-0630

Rebecca Davis
Water Resources Agent
Savannah Valley Region
rwdavis@clemson.edu
803-245-2661

Matt Fischer
Agribusiness Agent
Pickens County
fischer3@clemson.edu
864-898-8326

New and Beginning Farmers Class of 2021

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

POND MANAGEMENT
Spring Into Action To Maintain A Healthy Pond

Susan Lunt
Water Resources Agent
Pickens County
slunt@clemson.edu
864-898-8324

Heather Nix
Water Resources Agent
Upstate Region
nixh@clemson.edu
864-365-0630

Steven O'Shields
Water Resources Agent
Anderson County
oshields@clemson.edu
864-589-2865

Haley Parent
Water Resources Agent
Clemson Campus
hparent@clemson.edu
864-656-8707

Pond Management: Spring

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

SUMMER POND MANAGEMENT WEBINAR

Drew Jeffers
Horticulture and Natural Resources Agent
Spartanburg County
djjeffers@clemson.edu
864-584-0422

Holly Forest
Water Resources Agent
Clemson Campus
hforest@clemson.edu
864-656-8707

Heather Nix
Water Resources Agent
Upstate District
nixh@clemson.edu
864-365-0630

Steven O'Shields
Water Resources Agent
Anderson County
oshields@clemson.edu
864-589-3385

Susan Lunt
Water Resources Agent
Pickens County
slunt@clemson.edu
864-898-8324

Pond Management: Summer

COOPERATIVE EXTENSION
College of Agriculture, Forestry and Life Sciences

WINTER POND MANAGEMENT WEBINAR

Haley Parent
Water Resources Agent
Pickens County
hparent@clemson.edu
864-656-8707

Heather Nix
Water Resources Agent
Upstate District
nixh@clemson.edu
864-365-0630

Steven O'Shields
Water Resources Agent
Anderson County
oshields@clemson.edu
864-589-3385

Susan Lunt
Water Resources Agent
Pickens County
slunt@clemson.edu
864-898-8324

Pond Management: Winter

Annual Report of Activities Format

This annual report is intended to give the reader a comprehensive look at the APCSP from January 1, 2021 through December 31, 2021. This report delineates activities into public education and public involvement categories. For each activity, a brief description is provided as well as information on lead provider, supporting partners, date, number of impacts, and target audiences. Furthermore, public education activities are identified as either direct or indirect outreach strategies.

Clemson Extension's Carolina Clear program developed an online database to record detailed information on activities conducted by consortium partners. The data collected in the online database includes information on target audiences, pollutants addressed, activity type, lead service providers, supporting partners, number of impacts, location, and several other categories. This annual report provides a condensed version of the information collected in the online database as well as additional, supplementary information sourced from APCSP partners.

Public education activities are classified into two broad categories, **direct** and **indirect** outreach methods, to express mechanisms by which information has been communicated to the public. Direct methods include activities that are implemented via direct personal contact. Examples of direct methods include workshops, presentations, trainings, and public involvement activities. In contrast, indirect outreach methods refer to contacts through traditional media channels including television, radio, print, and billboards. Indirect methods generally reach a much greater portion of the population due to the nature of their mediums; however, it is often more difficult to gauge specific impacts. When dealing with direct methods, smaller numbers of people are reached yet the ones that are reached generally provide a forum for direct evaluation and feedback. Each method is important in the overall education campaign, and both are part of the five year educational strategy for the APCSP. Throughout the document, the words "direct" or "indirect" are provided at the top of each reporting table.

Data provided are as accurate as possible and are reviewed by multiple individuals involved in the reporting process. However, due to the nature of indirect outreach initiatives, indirect impact numbers are typically estimates.

The activities in the report are listed in table format.



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|--------------|---|--|-------------------|
| 2021 | SC ETV Making It Grow! Average viewers per episode (based on average households viewing each episode and persons per household via census) | Clemson Extension, SC ETV | 21,331 |
| 2021 | FOG Billboard in City of Anderson (Murray Avenue, 350 feet N/O Roberts Street ES) | Clemson Extension, APCSP | 499,811 |
| 3/15-4/15/21 | Rain Barrel Sale and FOG Billboard Image - YMCA tv monitor display for 30 sec every 15 min at 3 locations in Pickens County | APCSP, Clemson Extension, Carolina Clear | 35,000 |
| 2021 | Carolina Clear website provides information on programs and resources to address stormwater pollution prevention | Clemson Extension, Carolina Clear | 9,447 |
| 2021 | Carolina Yards website provides information on creating healthy, watershed-friendly, low-maintenance landscapes | Clemson Extension, Carolina Clear | 28,749 |
| 2021 | Water Resource Team website provides information on programs and resources to address water quantity and water quality issues in South Carolina and beyond | Clemson Extension, Carolina Clear | 101,211 |
| 2021 | Stormwater Pond Management website assists HOAs, community managers, property management companies, and waterfront residents with choosing the best management options for maintaining their stormwater ponds | Clemson Extension, Carolina Clear | 85,083 |
| 2021 | Be Septic Safe website provides information on septic tank management to prevent bacteria pollution and ensure septic systems are functioning as intended | Clemson Extension, Carolina Clear | 838 |
| 2021 | Carolina Rain Garden Initiative website provides tools and resources to assist with the installation of rain gardens in diverse settings such as yards, schoolyards, community centers and more | Clemson Extension, Carolina Clear | 4,638 |

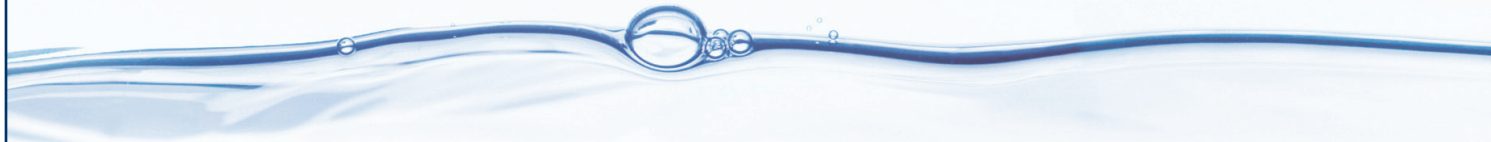


| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|---------|--|--|-------------------|
| 2021 | Carolina Clear Facebook page (Lifetime Post Total Reach: The number of people who had your Page's post enter their screen. Posts include statuses, photos, links, videos and more) | Clemson Extension, Carolina Clear | 54,128 |
| 2021 | Carolina Yards Facebook page (Lifetime Post Total Reach: The number of people who had your Page's post enter their screen. Posts include statuses, photos, links, videos and more) | Clemson Extension, Carolina Clear | 58,407 |
| 2021 | APCSP Facebook page (Lifetime Post Total Reach: The number of people who had your Page's post enter their screen. Posts include statuses, photos, links, videos and more) | APCSP, Clemson Extension, Carolina Clear | 10,008 |
| 2021 | Clemson Extension Pickens County Facebook Page (Lifetime Post Total Reach: The number of people who had your Page's post enter their screen. Posts include statuses, photos, links, videos and more) | APCSP, Clemson Extension | 1,660 |
| 2021 | CU Stormwater Instagram | APCSP, Clemson Extension, Carolina Clear | 544 |
| 2021 | Carolina Clear YouTube Channel: Average view duration was 2:04 | Clemson Extension, Carolina Clear | 21,200 |
| 2021 | Video tutorial for septic find and fix application as part of the LKSWPT 319 grant program | APCSP, Clemson Extension, Carolina Clear, LKSWPT | ongoing |
| 4/22/21 | Rain Chain Carry-Out Craft Video/Earth Day | APCSP, Clemson Extension, Carolina Clear, Pickens County Library | 1,700 |
| 2/1/21 | Pickens County Chamber of Commerce FB post on FOG and Petwaste | APCSP, Pickens County Chamber of Commerce, Carolina Clear | 2,000 |



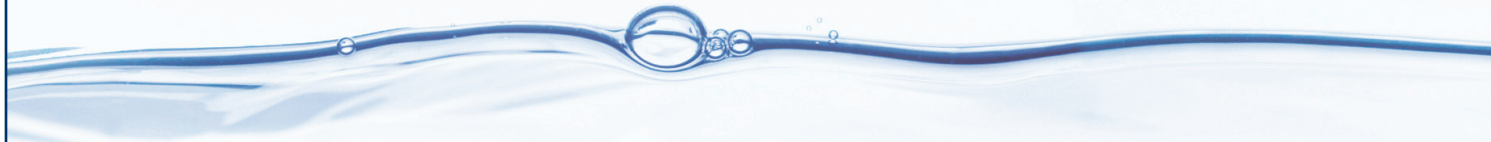
| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|----------|---|--|-------------------|
| 2021 | APCSP Monthly E-Newsletter: 12 issues | APCSP, Clemson Extension | 318 |
| 2021 | Articles for FOLKs Newsletter The Sentinel on the following topics: Be Septic Safe, Lot Erosion Control Measures for Construction Sites, TTB, Earth Day Rain Chain Carry Out Craft, Stream Bank Erosion, Storm Drain Marking, Farming for Clean Water, AAS, Repurposing Christmas Trees | APCSP, FOLKs | 1200 |
| 2021 | Articles for PSWCD Newsletter on the following topics: Be Septic Safe, Lot Erosion Control Measures for Construction Sites, TTB, Earth Day Rain Chain Carry Out Craft, Stream Bank Erosion, Storm Drain Marking, Farming for Clean Water | APCSP, PSWCD | 400 |
| 2021 | Articles for Pickens County Chamber of Commerce Newsletter on the following topics: FOG & Petwaste | APCSP, Clemson Extension, Pickens County Chamber of Commerce, Carolina Clear | 600 |
| 11/30/21 | Article for Cu in the Woods Newsletter on Repurposing Your Old "Live" Christmas Tree to Benefit Wildlife | Clemson Extension, Carolina Clear | 2598 |
| 2021 | Guide to Rain Gardens in SC Manual | Clemson Extension, Carolina Clear | 22 |
| 2021 | Site Stabilization Brochures | Clemson Extension, Carolina Clear, City of Anderson, APCSP | 5 |
| 2021 | Watershed educational Postcard Series | APCSP | 45 |

Public Education: Indirect



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|------|---|---------------------------------------|-------------------|
| 2021 | Stream Bank Repair Manual, newly published in 2021, focuses on a set of practices designed to repair and stabilize unhealthy stream banks to protect property, habitat, and water quality | Clemson Extension | 12 |
| 2021 | Carolina Yardstick Manual helps guide SC homeowners in creating healthy, watershed-friendly, low-maintenance landscapes | Clemson Extension | 5 |
| 2021 | Rainwater Harvesting for Homeowners manual discusses the benefits of small scale residential rainwater harvesting and provides tips and tricks for designing and building your own rain barrel and creating a watershed-friendly home landscape | Clemson Extension, Carolina Clear | 20 |
| 2021 | Developed a new rack card to educate residents on how to maintain ditches to help prevent flooding and protect water quality | APCSP, Clemson Extension | 400 |
| 2021 | Developed a new rack card to educate contractors and inspectors on proper lot erosion control measures for construction sites | APCSP, Clemson Extension | 450 |
| 2021 | HGIC Blogs and Factsheets/Land Grant Press articles on the following topics: pond weeds, troubleshooting salt marsh decline, creating aquatic habitat, reducing plastic waste for drinking water, improving fish populations in recreational ponds, and riveroats | Clemson Extension | 3,357 |
| 2021 | Clemson News Articles on living shorelines, dam ownership course, and Carolina Clear statewide survey | Clemson Extension, Clemson University | 1,916 |





| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|----------------|--|--|-------------------|
| 2021 | Provided Clemson University's Kite Hill Recycling Center with FOG rack cards and can lids for giveaway in partnership with FOG recycling available at the center | APCSP, Clemson Extension, Clemson University | ongoing |
| 2021 | APCSP promotional items distributed at various campus events: "All In for Lake Hartwell" stickers, coasters, reusable bags, and nalgene; Clemson Extension reusable straws and pens | APCSP, Clemson Extension, Clemson University | 100 |
| 3/26-10/29/21 | APCSP Promotional Items: Pencils with Pickens County Stormwater logo and website | APCSP, Clemson Extension, PC | 1200 |
| 2021 | APCSP Promotional Items: FOG lids, Pot Holders, rack card | APCSP, Clemson Extension, United Way | 140 |
| 2021 | APCSP Promotional Items: Petwaste bag, waste baggies, tennis ball, infocard, can lid, bandana | APCSP, Clemson Extension | 50 |
| 2021 | The City of Anderson Wastewater Utilities Division provided local restaurants with training packets (produced by APCSP) on proper FOG management | APCSP, City of Anderson, Clemson Extension | 12 |
| 12/13-12/17/21 | The City of Anderson Stormwater Public Works Division distributed 4,000 garbage cart notices with an educational message about adopting neighborhood storm drains and keeping them clear of pollutants | City of Anderson | 4000 |
| 2021 | APCSP provided outreach material to Anderson County Stormwater for distribution to the public (rack cards, pamphlets, technical guides, etc) | APCSP, Anderson County, Clemson Extension | 250 |
| 2021 | APCSP provided outreach material to the City of Anderson Stormwater Public Works Division for distribution to the public (rack cards, pamphlets, technical guides, etc) | APCSP, City of Anderson, Clemson Extension | 250 |



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|--------------|---|--|-------------------|
| 1/1-10/31/21 | City of Liberty posting the FOG Billboard image on the back of every water bill. 1600 Households impacted | APCSP, City of Liberty, Clemson Extension | 1600 |
| 10/29/21 | Tip sheets provided (yard waste) and PC stormwater stickers for Halloween for Pickens County trick or treat | Clemson Extension, PC | 50 |
| 2021 | Rack Cards distributed in PC: Pet Waste Stinks, Healthy Ponds, Rain Gardens, Rainwater Harvesting, FOG, Litter, Storm Drains, Compost, Gardening, & Native Plants | APCSP, City of Easley, Clemson Extension, Carolina Clear, PC | 500 |
| May-21 | Promotional Items: Septic Magnets distributed to SCDHEC, Pickens County Stormwater, and Septic Contractors | APCSP, Clemson Extension, Carolina Clear, SCDHEC | 350 |



*“Be Septic Safe”
 Education & Reminder Magnet*



*“Finn's Yard Care”
 Stormwater Tip Sheets*



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|------|--|--|-------------------|
| 2021 | Permeable pavement demonstration sites across the consortium region: # of sites | APCSP, City of Anderson, Clemson University | 2 |
| 2021 | Protecting Water Resources Display at Pickens County Art & History Museum: 2021 visitors | APCSP, Pickens County Art & History Museum | 2042 |
| 2021 | Rain barrels installed across consortium region: # of barrels | APCSP, Clemson Extension, Clemson University | 67 |
| 2021 | Pet waste stations & educational signage installed across consortium region: # of stations | APCSP, Clemson Extension, Clemson University | 46 |
| 2021 | Rain gardens and bioretention cells installed across consortium region: # of sites | APCSP, Clemson Extension, Clemson University | 36 |



Bioretention Educational Sign at Gateway Park in Clemson, SC



Pet Waste & Safety Signs on Clemson's Campus



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|---------|--|---|-------------------|
| 2021 | Water Resource Agent on campus responded to 55 requests from the public and campus community for information on, or technical assistance with, various stormwater-related issues including rainwater harvesting, stormwater BMPs, stormwater permitting, AAS, drinking water and private well testing, FOG disposal, petwaste, etc. | APCSP, Clemson Extension, Clemson University | 55 |
| 2021 | Anderson County Water Resources Extension Agent responded to 23 requests from the public regarding information on, or technical assistance with, various stormwater-related issues including rain barrels, stormwater BMPs, stormwater ponds, and recreational pond management | APCSP, Clemson Extension | 23 |
| 2021 | Water Resources Agent in Pickens County responded to requests from the public regarding information on, or technical assistance with, septic, wet yard, sinking yard, stream bank repair, AAS, TTB, Lot erosion, nuisance wildlife, ponds, drinking water, collaboration with Library, Elementary Schools, weed identification, FOG, petwaste, litter, rainwater harvesting, pond sampling, water analysis, algae, soil samples, fertilization, liming, pH, xmas tree recycle, litter, farming, feral hogs, powerwash, aeration, stormdrains. lead grant, ground covers, vegetative buffers, floating wetlands | APCSP, Clemson Extension | 85 |
| 2021 | Clemson Extension in cooperation with Clemson's Agricultural Service Lab processed soil and water samples for Pickens County | Clemson Extension | 99 |
| 2021 | Clemson Extension in cooperation with Clemson's Agricultural Service Lab processed soil and water samples for Anderson County | Clemson Extension | 221 |
| Apr-21 | Being a Neighbor for Clean Water Webinar Series: 8 offerings with topics including SC Water Resources, Watershed Health, Water Use, Waterwise Landscaping, Managing Water in the Home Landscape, Native Plants, Healthy Ponds, Citizen Science Water Quality Monitoring | Clemson Extension, Carolina Clear | 72 |
| 5/10/21 | SC AAS presentation made at the LHPCW May meeting. The presentation highlighted future monitoring needs in the Lake Hartwell watershed that grant funding could go towards | Clemson Extension, Center for Watershed Excellence, APCSP | 15 |

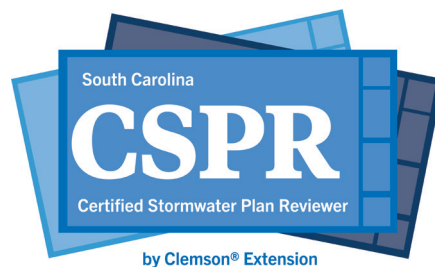


| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|---------------|--|--|-------------------|
| 5/18/21 | "Becoming the Solution to 'People Pollution': An Overview of Stormwater Education, Outreach, and Public Involvement at Clemson University" webinar presented to Emeritus College Faculty | APCSP, Clemson Extension, Clemson University | 7 |
| 8/30/21 | Presented on proper FOG disposal and educational materials for Clemson University Dining Managers | APCSP, Clemson Extension, Clemson University | 16 |
| 4/7/21 | APCSP represented to speak during Clemson University Sustainability Summit's Policy, Education, and Engagement Panel | APCSP, Clemson Extension, Clemson University | 5 |
| 6/11/21 | Environmental Educators Association of SC Conference: virtual presentation on the Traveling Trash Bash, the partnerships, and knowledge gained by students | APCSP, Clemson Extension, SDPC, PCBEAC, 4H | 14 |
| 9/30/21 | National Volunteer 4H Conference of Southern States video presentation on the Traveling Trash Bash, the partnerships, and knowledge gained by students (number of participants is unknown) | APCSP, Clemson Extension, SDPC, PCBEAC, 4H, Pickens County | unknown |
| 3/31/21 | Spring Into Action to Maintain a Healthy Pond Webinar: Topics included land based and in pond actions to protect and improve water quality | APCSP, Clemson Extension | 33 |
| 5/27/21 | Summer Pond Management Webinar: Topics included algae and weed ID, water quality, nutrient management, and considerations before using herbicides | APCSP, Clemson Extension | 33 |
| 10/20/21 | Winter Pond Management Webinar: Topics included proactive management strategies to take during winter to help create a healthy pond such as erosion prevention and stabilization, pond aeration, dredging, dams, and wildlife and fish management | APCSP, Clemson Extension | 18 |
| 6/17-11/11/21 | Be Septic Safe Webinar: 2 offerings, topics included septic maintenance and failure issues, interview with a septic contractor, and presentation from SCDHEC in order to provide septic system users the information they need to properly care for and extend the life of their systems | Clemson Extension, Carolina Clear, SCDHEC | 46 |



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|--------------|---|--|-------------------|
| 8/26/21 | Farming for Clean Water Webinar: Topics included an overview of SC water quality, pollution sources, best management practices, and funding sources as they relate to stormwater | Clemson Extension | 19 |
| 3/4/21 | Virtual presentation at SCASM on Educational Outreach Materials for MS4s case study: Lot Erosion Control Measures for Construction Sites Rack Card | APCSP, Clemson Extension, SCASM, Carolina Clear | 80 |
| 9/8/21 | SC Association of School Administrators Presentation on Preventing Lead in Your School's Drinking Water with an introduction and overview of EPA's revised Lead and Copper Rule | Clemson Extension, SC Assoc. of School Admins | 25 |
| 5/25/21 | Virtual poster presentation made at the 2021 Association of Natural Resources Professionals conference. The poster entitled, "Developing future watershed scientists through collaborative partnerships in the classroom", highlighted the WOW Jr. classroom program | Clemson Extension, Clemson University | 10 |
| 7/13/21 | Tails & Tales Library Program involved the sharing of the book Water! Water! Water! Written and illustrated by Wallace and used the provided kit to experiment and record their findings on the properties of water | APCSP, PC Library, PC, 4-H | 50 |
| 2021 | MS4 Stormwater Compliance Training Program for Clemson University Employees. 108 Participants passed certification in 2021 | APCSP, Clemson Extension, Carolina Clear, Clemson University | 108 |
| 3/16-5/17/21 | Carolina Yards Online Course: The Carolina Yards Online Course was developed to assist and guide South Carolina homeowners in conserving water in the landscape and making positive changes in the environmental quality of their yards, neighborhoods, and surrounding waterways by implementing and maintaining low impact and low maintenance yard practices | Clemson Extension | 18 |
| 9/24/21 | Carolina Yards booth and rain barrel display at the SCBG fall plant sale | Clemson Extension, APSCP, SCBG | 252 |
| 2021 | Site visits across consortium region for the following needs: stormwater and recreational ponds, construction site maintenance, on-site stormwater for residents | APCSP, Clemson Extension, Pickens County, Clemson University | 46 |

| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|---------|--|--|-------------------|
| 2021 | Post-Construction BMP Inspector Certification Course: Clemson provides online and field-based training focused on inspection and maintenance of post-construction best management practices for stormwater. The certification course was offered in the spring and fall of 2021. The re-certification course was offered in the fall of 2021. In total, 81 professionals were certified and 28 professionals were re-certified in 2021 | Clemson Extension | 109 |
| 3/26/21 | Traveling Trash Bash for 3rd graders: 54 activity kits to demonstrate plant roots preventing erosion from stormwater runoff delivered to every 3rd grade classroom along with written and video instructions for all 54 3rd grade teachers. In addition, previously created video links on the Enviroscape, Sedimentation, Pervious vs. Impervious Surfaces were provided | Clemson Extension, APSCP, SDPC, PCBEAC | 1154 |
| 2021 | CEPSCI Course: Clemson provides training and certification through the Certified Erosion Prevention and Sediment Control Inspector (CEPSCI) program to assist in pollution prevention control on construction projects. Impacts reflect statewide trainings. Due to precautions associated with COVID-19, 2021 certifications and recertifications were offered as online and reduced capacity in-person formats | Clemson Extension, Clemson University, SCDOT, SCDHEC | 973 |
| 2021 | CSPR Course: Clemson provides training and certification through the Certified Stormwater Plan Reviewer (CSPR) program to educate personnel on the proper design and review of stormwater and sediment control plans for development sites in order to meet regulator and environmental requirements. Impacts reflect statewide trainings. Due to precautions associated with COVID-19, 2021 certifications and recertifications were offered as online and reduced capacity in-person formats | Clemson Extension, Clemson University, SCDHEC | 78 |



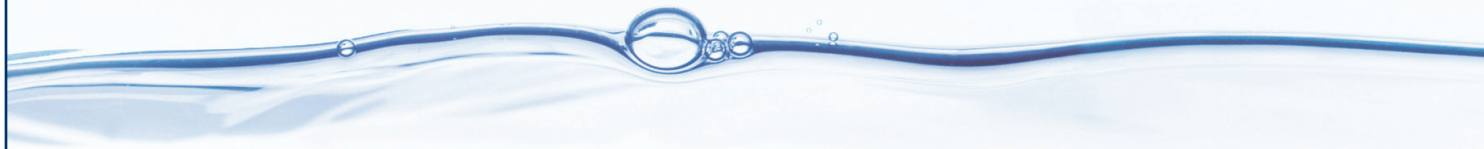
| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|----------|---|--|-------------------|
| 4/29/21 | Rain barrel sale at Clemson University Center for Watershed Excellence | APCSP, Clemson Extension | 33 |
| 10/27/21 | Water Quality Planting and BMP maintenance of a bioretention cell hosted by APCSP on campus during Clemson University's Solid Green Day sponsored by BASF | APCSP, Clemson Extension, Clemson University, BASF | 8 |
| 3/6/21 | City of Clemson stormwater partnered with the Friends of the Green Crescent Trail for a park/shoreline cleanup of Abernathy Park and the adjacent shoreline of Lake Hartwell. 76 bags of trash/litter collected | City of Clemson, Friends of the Green Crescent Trail | 52 |
| May 21 | Rain Garden maintenance at Pickens County Extension Office | Clemson Extension, APCSP | 1 |
| 6/23/21 | 4H Water Workshop provided information on and a kit to construct a rain chain and information and activities on the properties of water and being a good water steward | APCSP, Clemson Extension, 4-H | 10 |
| 4/22/21 | Rain Chain Carry-Out Craft: 50 participants created their own rain chain at home using kits provided by partners through the Pickens County Library | APCSP, Clemson Extension, Carolina Clear, Pickens County Library | 50 |



CU students and staff installing a bioretention cell as part of Solid Green Day.



Children assisting with a litter pickup on Lake Hartwell. Photo by Ken Scar for the City of Clemson



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|------|--|--------------------------|-------------------|
| 2021 | The Master Pond Manager (MPM) course teaches participants a wide range of management knowledge and skills for both stormwater and recreational ponds. The Fall 2021 class had 30 people in attendance, with field days held October 25-26 in Clemson, SC. A shoreline buffer and floating wetland were installed as part of the field days at the State Botanical Gardens in Clemson. The Spring 2021 class was held as a Letter of Completion track only (all virtual), with 13 participants. Due to delays associated with COVID-19 safety precautions, 23 people attended make-up field days held for the Spring 2020 class. The field days were held in the Charleston and Mount Pleasant on September 13-14, 2021. A floating wetland and shoreline buffer were installed at the Park West Recreation Complex as part of this field day | Clemson Extension, APCSP | 63 |
| 2021 | The Master Rain Gardener program provides design standards and the knowledge-based skill set necessary to design and install rain gardens and rainwater harvesting systems. The 2021 course offering included 25 participants in the Certification Track and 24 participants in the Letter of Completion Track. Due to delays associated with COVID-19, the field days for the 2020 and 2021 classes were combined and held on September 10th at the Enston Home Urban Farm in downtown Charleston. As part of the field day, 40 individuals retrofitted a farm stand with a water management system that includes a 250-gallon metal cistern, rock swale, and two rain gardens | Clemson Extension | 49 |



*Master Rain Gardener Field Day
September 2021*





| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|--------|---|--|-------------------|
| 2021 | Clemson University Solid Green Committee meetings, monthly | APCSP, Clemson Extension, Clemson University, Palmetto Pride, PC | 16 |
| 2021 | Clemson University Sustainability Commission meetings, monthly | APCSP, City of Clemson, Clemson Extension, Clemson University | 20 |
| 2/2/21 | Pickens County Advisory Council Meeting | Clemson Extension | 22 |
| 2021 | Pickens County Beautification and Environmental Advisory Committee meetings | Clemson Extension, PCBEAC, PC | 10 |
| 2021 | Lake Keowee Source Water Protection Team meetings, monthly | Clemson Extension, LKSWPT | 14 |
| 2021 | APCSP Quarterly Consortium Meetings | APCSP, Clemson Extension | 15 |
| 2021 | APCSP participation in Anderson Area Chamber of Commerce Water Resources Committee Monthly Meetings | Anderson County, APCSP, City of Anderson, Clemson Extension | 10 |
| 2021 | APCSP participation in Anderson Soil & Water Conservation District Monthly Meetings | APCSP, Clemson Extension, ASWCD | 10 |
| 2021 | APCSP participation in Lake Hartwell Partners for Clean Water Monthly Meetings | APCSP, Clemson Extension, Clemson University, USACE, Saddlers Creek State Park, AR-JWS Powdersville Water, Duke Power, Center for Watershed Excellence | 15 |



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|----------------|--|---|-------------------|
| 2021 | Carolina Yards certified in 2021 in SC | Clemson Extension | 97 |
| 11/9/21 | SC AAS mini workshop for Pickens County Career and Technology Center: Focus included stream habitat, physical, chemical, and bacteria attributes, and macroinvertebrates using AAS protocols and equipment | APCSP, Center for Watershed Excellence, Clemson Extension, SDPC, 4H | 14 |
| 2/26-3/5/21 | SC AAS Physical, Chemical, and Bacteria training held online followed by small-group field trainings in Greenville, SC | APCSP, Clemson Extension, SCDHEC, Center for Watershed Excellence | 7 |
| 8/18/21 | SC AAS Physical, Chemical, and Bacteria training held at Tri-County Technical College in Pendleton, SC | APCSP, Clemson Extension, SCDHEC, Center for Watershed Excellence | 14 |
| 4/17-4/28/2021 | SC AAS Freshwater online training and Field Sampling and Certification for Clemson Stream Team Students | APCSP, Center for Watershed Excellence, Clemson Extension, Clemson University, SCBG, SCDHEC | 5 |
| 8/31-9/7/2021 | SC AAS Freshwater in-person training Field Sampling and Certification for Clemson University Creative Inquiry Students | APCSP, Center for Watershed Excellence, Clemson Extension, Clemson University, SCBG, SCDHEC | 15 |
| 11/6/21 | SC AAS Freshwater Classroom Training and Field Sampling workshop for Clemson Stream Team students and other CAFLS students | APCSP, Center for Watershed Excellence, Clemson Extension, Clemson University, SCBG, SCDHEC | 10 |
| 2021 | SC AAS Sampling Events across consortium region (apart from above) | Center for Watershed Excellence, APCSP, SCDHEC | 91 |



LAKE HARTWELL
partners for clean water



| DATE | ACTIVITY DESCRIPTION | PARTNERS | NUMBER OF IMPACTS |
|----------------|---|--|-------------------|
| 6/24/21 | Storm drain marking at the Anderson Civic Center with United Way of Anderson volunteers. SDs marked: 21, volunteers: 7 | APCSP, Clemson Extension, United Way of Anderson | 7 |
| 6/22/21 | Storm drain marking and door hangers distributed in Bronson Ridge subdivision with Central Presbyterian Church volunteers. SDs marked: 38, Homes reached through outreach material: 100, volunteers: 28 | APCSP, Clemson Extension | 38 |
| 7/12-7/14/2021 | Storm drain marking art contest at Green Pond Landing in Anderson County. SDs marked: 7, volunteers: 10 | Anderson County, APCSP, Keep Anderson County Beautiful | 10 |



CU Creative Inquiry students monitoring water quality in a stream

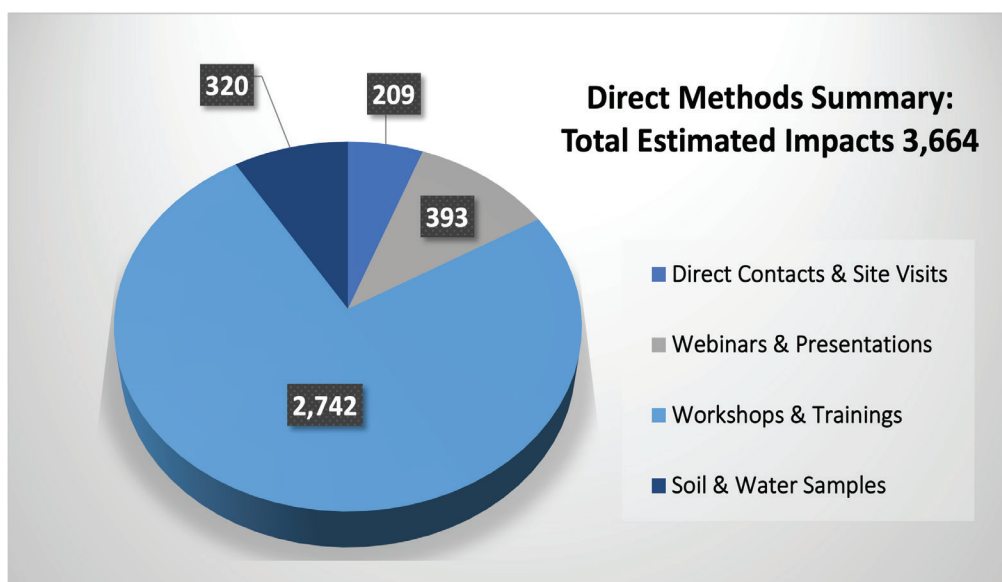
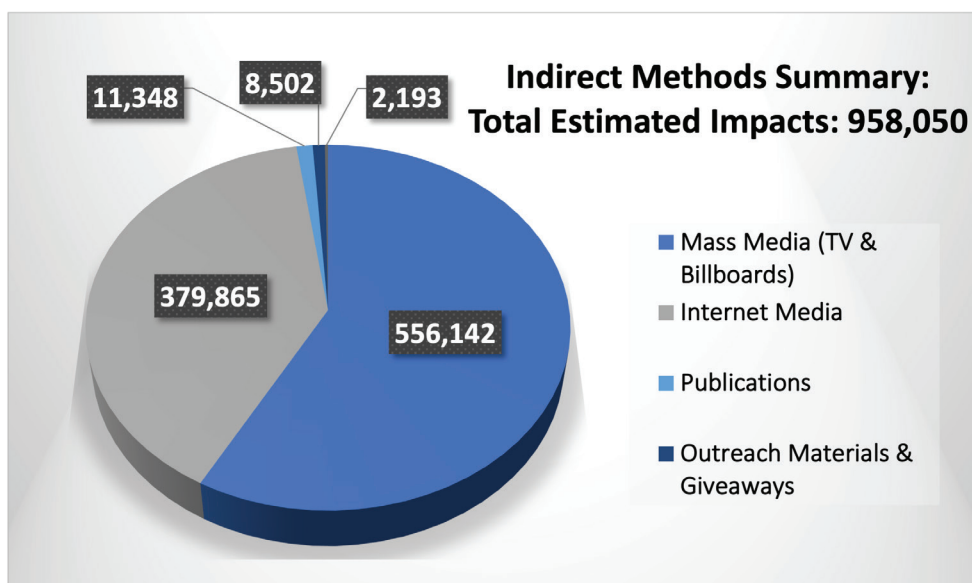


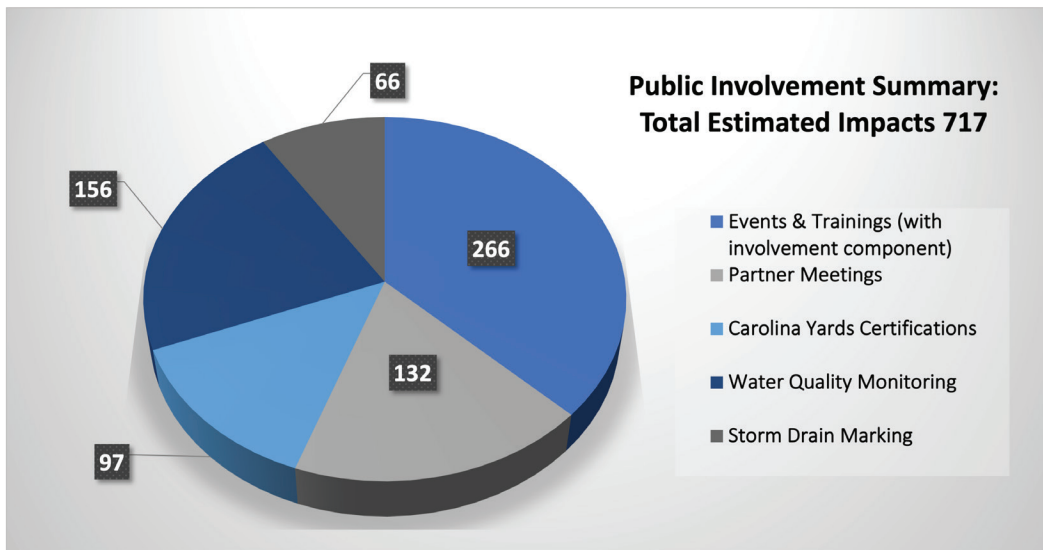
Volunteers marking storm drains in Anderson County



Outreach Summary

The Anderson & Pickens Counties Stormwater Partners impacted an estimated 962,431 people through direct & indirect education & outreach and public involvement in 2021. Indirect methods resulted in 958,050 impacts through mass media and other efforts. Direct methods reached 4,381 individuals through presentations, trainings, workshops, and public involvement opportunities.





Campers learning about the properties of water at a program with Pickens County Library

Education Plan:

Sediment

1. Erosion from Construction Sites
2. Residential Erosion

1. Erosion from Construction Sites

Target audience: Construction companies who do not properly install and maintain BMPs for erosion and sediment control

Problem: Some construction companies do not properly install and maintain BMPs for erosion prevention and sediment control.

Goal: Decrease time to stabilization and amount of bare soil.

Objective: Increase the number of construction sites that utilize BMPs for sediment control in a timely manner.

| Message | Format and distribution | Resources | Evaluation |
|---|--|---|--|
| <ul style="list-style-type: none"> • It is the law to stabilize. • Save time and money by doing it right. | <ul style="list-style-type: none"> • Silt Fence and Beyond • CEPSCI • Economics brochure • LID workshops • IECA Field Day • Post Construction BMP Inspector • Homebuilder's Association presentations | <ul style="list-style-type: none"> • SCASM • Municipalities • University • Contractors and construction companies | <ul style="list-style-type: none"> • Number of people who attend workshops & evaluation data • Number of brochures distributed |

Actions:

- Host Silt Fence and Beyond workshop, with a new focus on economics.
- Create brochure that focuses on economics at pre-con meetings, directly to construction companies, Homebuilder's Association, etc.
- Continue offering and offer support for CEPSCI, IECA Field Day, LID workshops and other existing programs.

2. Residential Erosion

Target audience: Homeowners

Contributing behavior: Homeowners with sediment issues who do not properly install and maintain BMPs are contributing sediment to local waterways.

Goal: Decrease time to stabilization and amount of exposed soil.

Objective: Increase the number of BMPs installed for sediment control in a timely manner.

Education Plan:

| Message | Format and distribution | Resources | Evaluation |
|---|---|---|--|
| <ul style="list-style-type: none"> Bare soil negatively impacts our water health. Sites need to be stabilized ASAP. Riparian buffers help protect your land from erosion. | <ul style="list-style-type: none"> Billboards Newspaper articles Factsheet geared toward homeowners Carolina Yards (CY) & Rain Garden workshops Rain barrel sale, painting, building, etc. | <ul style="list-style-type: none"> University Municipalities Home & Garden Information Center (HGIC) | <ul style="list-style-type: none"> Number of people who attend & participant evaluation from workshops Rain barrels sold Viewership from billboards/newspaper CY certifications Number of phone calls asking for help |
| | Format and distribution, contd. | | Evaluation, contd. |
| | <ul style="list-style-type: none"> Riparian buffer workshop Master Pond Manager & Master Rain Gardener | | <ul style="list-style-type: none"> Number of rain gardens installed Riparian buffer demo site Number of people accessing erosion factsheet |
| Actions: | | | |
| <ul style="list-style-type: none"> Host Carolina Yards & Rain Garden workshops. New and existing rain barrel programs. Host Master Pond Manager and Master Rain Gardener courses. Create homeowner erosion factsheet. Create regional billboard. | | | |

Litter

- Litter
- Illegal Dumping

1. Litter

Target audience: People Who Litter

Contributing behavior: People who contribute to roadside littering or improperly dispose of household items.

Goal: Decrease litter found on the land and in waterways.

Education Plan:

| Objective: Increase litter clean up campaigns for streams. | | | |
|---|---|---|--|
| Message | Format and distribution | Resources | Evaluation |
| <ul style="list-style-type: none"> Litter is getting into the stormwater systems and our streams, polluting the environment and potentially causing storm drain failure. Litter can negatively affect tourism and property values and can increase crime. | <ul style="list-style-type: none"> Mass media Factsheets Newspaper articles Who to Call List List of approved dump locations Community clean-up efforts | <ul style="list-style-type: none"> Municipalities University Invested organizations in the county (Keep America Beautiful, Adopt a Highway) Palmetto Pride or other grants for litter prevention and clean-up Solid waste departments Law enforcement/litter officers | <ul style="list-style-type: none"> Number of organized clean ups on streams Number of published articles about litter clean ups Number of bags of waste picked up |
| Actions: | | | |
| <ul style="list-style-type: none"> Create or streamline online resources, including Who to Call list. Organize stream clean ups. | | | |

2. Illegal Dumping

| Target audience: People dumping trash in business dumpsters | | | |
|--|--|---|---|
| Contributing behavior: People who dump their trash illegally in business dumpsters, causing them to overflow. | | | |
| Goal: Decrease illegal dumping and overflowing of business dumpsters. | | | |
| Objective: Increase awareness and education of illegal dumping. | | | |
| Message | Format and distribution | Resources | Evaluation |
| <ul style="list-style-type: none"> Dumping homeowner trash in business dumpsters is illegal. | <ul style="list-style-type: none"> Mass Media Fact Sheets Educational packets for businesses Who to Call List List of approved dump locations | <ul style="list-style-type: none"> Municipalities University Chamber of Commerce Solid waste departments Law enforcement/litter officers | <ul style="list-style-type: none"> Number of signs distributed |

Education Plan:

Actions:

- Create or streamline online resources, including Who to Call list
- Create signage for businesses with link to resources

Bacteria

1. Septic System Maintenance
2. FOG Disposal
3. Dog Waste

1. Septic System Maintenance

Target audience: Homeowners on septic

Contributing behavior: Septic systems that are not properly maintained/repaired.

Goal: Decrease bacteria contributed by failing septic.

Objective: Increase awareness and proper maintenance of septic systems.

| Message | Format and distribution | Resources | Evaluation |
|--|--|---|--|
| <ul style="list-style-type: none"> • Failing septic contributes to pathogens in the environment that can make humans sick. • Save money by maintaining instead of waiting for failure. | <ul style="list-style-type: none"> • Billboards • Newspaper articles • Updated fact sheets/postcards • Economic emphasis • Septic workshops | <ul style="list-style-type: none"> • DHEC factsheets • 319 grants • Septic companies • Realtors • University | <ul style="list-style-type: none"> • Number of people who attend workshops & program evaluations • Self-reporting on state survey • Site specific website hits on developed web-based material • Number of magnets distributed |

Actions:

- Create map for septic in our counties and determine problem areas.
- Create workshop/presentation for septic owners.
- Develop online resources - contractors, tips for inspection.
- Update septic postcard and create magnet.

2. FOG Disposal

Target audience: Homeowners and rental properties

Contributing behavior: FOG (fats, oils, and grease) that is not disposed of properly.

Goal: Decrease bacteria contributed by FOG-related sewer overflows.

Objective: Increase awareness and proper disposal of FOG.

Education Plan:

| Message | Format and distribution | Resources | Evaluation |
|---|---|---|---|
| <ul style="list-style-type: none"> FOG down drains can clog pipes and lead to sewer overflows. Save money on pipe repairs by properly disposing of FOG. | <ul style="list-style-type: none"> Apartment-specific FOG info Updated postcard Newspaper articles | <ul style="list-style-type: none"> Municipalities/wastewater utilities Apartment rental offices HOAs DHEC | <ul style="list-style-type: none"> Number of educational materials distributed |
| Actions: | | | |
| <ul style="list-style-type: none"> Distribute FOG magnets/ FOG lids to apartment complexes. Create poster/door hanger for apartment complexes. Write newspaper articles regarding residential FOG. | | | |

3. Dog Waste

Target audience: Pet owners

Contributing behavior: Dog owners are not properly picking up and disposing of their pet waste.

Goal: Increase the amount of pet waste picked up and thrown away.

Objective: Increase awareness about why people should clean up after their pet.

| Message | Format and distribution | Resources | Evaluation |
|--|---|---|--|
| <ul style="list-style-type: none"> Pet waste contributes to bacteria pollution of our surface water. A small change in habit can make a big difference for water quality. Utilize pet waste stations when available. | <ul style="list-style-type: none"> Commercial and billboards Factsheet Dog park signage and education Puppy packets with educational material at dog adoption centers | <ul style="list-style-type: none"> University Adoption clinics Dog parks | <ul style="list-style-type: none"> Number of signed puppy pledges Number of pet waste bags clips distributed Viewership of mass media campaign Number of public events /programs where relevant information is distributed |
| Actions: | | | |
| <ul style="list-style-type: none"> Distribute pet waste bag clips. Get puppy pledges signed at adoption centers. Mass media campaign - commercial and billboards. Update postcard. Create signage for pet waste stations. | | | |

Education Plan:

| APCSP 5 year education timeline | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | | | | | | | | | | | |
|---|-------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|
| | Month | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | OND | JFM | AMJ | JAS | | | | | |
| Erosion from Construction Sites | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Silt Fence and Beyond workshop, with a new focus on economics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create brochure that focuses on economics, for distribution at pre-con meetings, directly to construction companies, Homebuilder's Associations, etc. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Continue offering and offer support for CEPSCI, IECA Field Day, LID workshops, and other existing programs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residential Erosion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Carolina Yards & Rain Garden workshops, every other year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Continue offering existing rain barrel programs including school presentations and installations and rain barrel sale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host rain barrel painting program for the public | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Master Rain Gardener course | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Master Rain Gardener course | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create homeowner erosion factsheet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create regional billboard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Litter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create or streamline online resources, including Who to Call list | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organize stream clean ups, four times per year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Organize stormdrain art contests and installations, every other year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Illegal Dumping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create or streamline online resources, including Who to Call list | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create signage for businesses with link to resources | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Septic System Maintenance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create map for septic in our counties and determine problem areas | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create workshop/presentation for septic owners | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Develop online resources- contractors, tips for inspection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Update septic postcard and create magnet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FOG Disposal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create poster/door hanger for apartment complexes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Distribute FOG magnets/FOG lids to apartment complexes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Write newspaper articles regarding residential FOG, once per year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dog Waste | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Distribute pet waste bag clips | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Get puppy pledges signed at adoption centers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mass media campaign- commercial and billboards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Update postcard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Create signage for pet waste stations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AUTHORS

SUSAN LUNT

Water Resources Agent, Pickens County

STEVEN O'SHIELDS

Water Resources Agent, Anderson County

HALEY PARENT

Water Resources Agent, Clemson University

REVIEWERS

Jon Batson, Billy Bolger, Adam Cromer,
Scottie Ferguson, and Kim Morganello

ADDITIONAL PHOTO CREDITS

Ken Scar for the City of Clemson (top left cover photo)



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ANDERSON & PICKENS COUNTIES
stormwater
PARTNERS



*Clemson Extension Water Resource Agents & APCSP Coordinators
(from left to right: Steven O'Shields, Susan Lunt, Haley Parent)*



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