

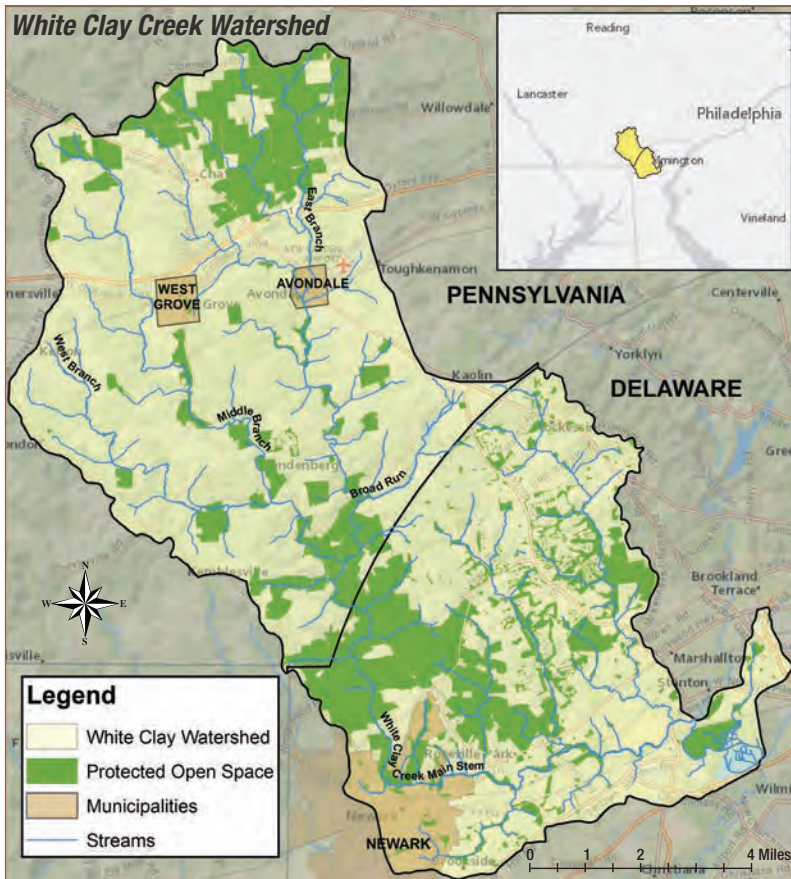


White Clay Creek National Wild and Scenic River

2017 Update

Promoting clean water through outreach
restoration, and land protection.





Partnership Wild and Scenic Rivers

The 1968 Wild and Scenic Rivers Act calls on the nation to preserve select rivers in free-flowing condition. Rivers are chosen on the basis of outstanding values such as scenic, recreational, ecological, geologic, historic or cultural.

Most National Wild and Scenic Rivers flow through federal lands, but Partnership Rivers flow through privately held lands or lands owned by local or state governments. The National Park Service provides funds and staff assistance to communities and local and state representatives to protect and manage these rivers for the benefit and enjoyment of present and future generations.

White Clay Creek was designated a National Wild and Scenic River by an Act of Congress signed into law by President Clinton in October, 2000. In 2014, nine additional stream miles were added to the original designation of 190, bringing the total miles protected under the Act to 199 miles.



Welcome to the White Clay Creek National Wild and Scenic River Program Update. The Watershed Steering Committee presents our 2017 accomplishments to watershed partners, legislators, and our community.

2018 marks the 50th anniversary of the Wild and Scenic Rivers Act.

We celebrate this landmark legislation that afforded our river added protections, as well as the people who have donated time as citizen scientists, participated in environmental stewardship, and collaborated across political boundaries to reduce water pollution.

*"Boundaries don't protect rivers, people do."
Brad Arrowsmith, Landowner along the Niobrara National Scenic River, Nebraska*

Helping the Environment One Measurement at a Time

Citizen science bridges the gap between the scientific community and the public, engaging people of all backgrounds in gathering scientific data used for research and natural resources management. The White Clay Creek Wild and Scenic River Program relies on data collected by trained citizen scientists to help keep a pulse on stream health. On a typical day, citizen scientists are out in the field taking water quality samples and stream measurements. These data provide baseline information on streams that haven't been assessed by state agencies and help to detect changing water quality trends over time. Ultimately, this information informs decisions regarding land use, land management, and land protection – all of which have a significant impact on water quality and stream health. The following individuals have contributed greatly to citizen science in the White Clay:

Marion Waggoner, a retired physical chemist, and Dave Yake, a retired chemical engineer, are watershed residents who began their journey three years ago when a private water company gave notice of plans to begin pumping a well adjacent to their local stream - Broad Run. Their initial work measuring stream flow at several points along Broad Run, grew into a broader interest in the watershed and water quality. Marion and Dave recognized the need for more information on smaller creeks throughout White Clay and expanded into measuring stream flow and taking additional water quality measurements at other stream locations. Combining their backgrounds, they developed their own base flow and runoff model to predict how much water will flow after any given rain event. Their goal is to share this model with other citizen science programs beyond the White Clay. Marion believes there are other people out there looking for more purpose, and being a citizen scientist is one way of finding that, adding, "I didn't know volunteering would be quite as fulfilling as it is."



Marion measuring flow.

Rob Tuttle began his path as a citizen scientist as a volunteer for the Delaware Nature Society. As a volunteer, he noticed a need to expedite the analysis and reporting of the stream data collected. Using his background in software engineering, Rob created a stream data analysis program to interpret water quality data that is currently being tested by the White Clay Wild and Scenic Program in collaboration with the Delaware Nature Society's Stream Watch Program and The Nature Conservancy Stream Stewards Program. The software program Rob created allows for quick and easy reporting of stream data, including identifying water quality trends and water quality issues. Ultimately, Rob hopes his program will help natural resource managers communicate information and educate others about water quality so they will be more engaged in watershed restoration and protection.

"There are many opportunities to apply your scientific skills, to continue learning, and to contribute to a better and sustainable future. I have found my volunteer experience quite rewarding."

Rob Tuttle, citizen scientist.

Marion, Dave, and Rob have strong science backgrounds but you don't need a science background to participate - anyone can volunteer and learn with a little training. David Bressler, Citizen Science Project Facilitator at Stroud Water Research Center, provides technical assistance and training to watershed organizations building their own citizen science programs. Currently, Dave is providing guidance in the deployment and use of EnviroDIY Sensor Stations. These instruments take continuous measurements of electrical conductivity, water temperature, water depth, and turbidity. Dave and other Stroud scientists also provide workshops and technical assistance to citizen scientists and natural resource managers throughout the region as part of the Delaware River Watershed Initiative supported by the William Penn Foundation. Dave hopes to promote a more science literate culture through this initiative, as well as to develop a richer set of data describing conditions in the Delaware River basin. He wants citizen scientists to understand their goal before going into the field. Knowing what their goal is will allow for better measurements and understanding of the scientific process. Ultimately, "communicating effectively" is the target, which will in return make the scientific process more understandable and accessible.

The White Clay Wild and Scenic Program hopes to build upon the foundation laid down by these volunteers to engage more people in watershed stewardship and to create a strong and informed network of citizen scientists who are advocates and champions for our natural resources. As the program expands, there will be additional needs and opportunities for citizens to contribute to science in the White Clay. Learn more at whiteclay/streamwatch.

Catching Rain One Drop at a Time



Canopy tree planting; a popular Catch the Rain practice.

Watershed residents who may not have the time to actively participate in citizen science, can contribute to watershed stewardship through the White Clay Catch the Rain Program. This rebate program, now on its second year, consists of on-site individualized homeowner education that culminates in a specialized report with specific instructions on practices that homeowners can implement to make a

positive environmental impact on their small piece of the watershed. Homeowners review their report and determine what practices they would like to implement. Once a project is approved and installed, the homeowner can apply for a rebate of up to \$2,500. Projects are as simple as planting native shade trees over your driveway or along a stream, installing an eye-catching bed of native wildflowers, or catching the runoff from your roof to reuse on your lawn or garden. These small projects catch water at its source and can have a large cumulative effect. They help 'green' your neighborhood, boost your property values, save you money, while also helping the White Clay flow clean and clear.

During the pilot-year, the program had 36 applicants, culminating in 26 property visits and site reports. Four rebates were awarded, and three others are pending. The most popular projects being tree plantings and rain barrel installation. The primary goal of the program is to implement green practices on private property where there are outdated or no stormwater controls. In addition to getting more projects in the ground, there is the added value of one-on-one education that takes place during each site visit. Much like the plant-based practices we are recommending, we are also planting the seeds to help watershed residents take actions to protect our environment. Several applicants have taken advantage of this personalized advice to inform current property management without the need to apply for a rebate. Learn more at whiteclay/catchtherain.



Citizen science training workshop at Stroud Water Research Center.

Multi-municipal Water Quality Planning

Municipalities are also trying to do their part to improve water quality. We are on year two of the watershed-wide multi-municipal collaboration on stormwater in Pennsylvania. Three pilot areas were selected in the Brandywine-Christina watershed, including the east branch of White Clay Creek. The work has been supported by the Wild and Scenic Program and a grant from the National Fish and Wildlife Foundation through the Brandywine Red Clay Alliance.

Municipalities throughout Pennsylvania submitted their stormwater permit applications in September 2017. In the White Clay Creek pilot area, many of the municipalities submitted permit applications indicating that they had met their pollutant reduction requirements. Only two municipalities indicated a need to implement any projects under the permit requirements. Since the pollution reductions needed for those two municipalities were small, they were able to identify one or two projects within their municipality to implement. In other words, since there wasn't a great need to implement projects, there wasn't the need for a watershed-wide multi-municipal collaborative plan.

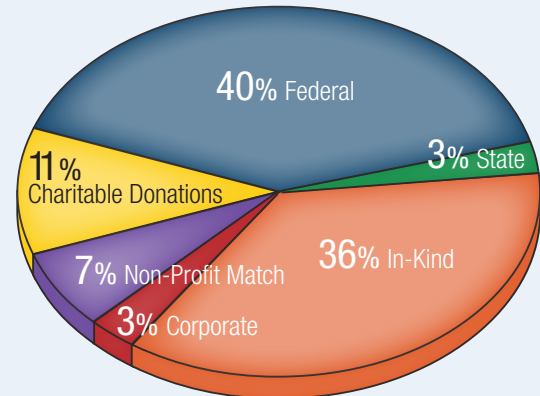
The fact that many municipalities found they had met their pollutant reduction requirements was initially surprising. However, the analytical methods allowed by the Pennsylvania Department of Environmental Protection (PA DEP) indicated a significant reduction in sediment loading from stormwater runoff if lands were converted from agricultural to residential use in the last several years. While residential land use can increase the amount of impervious cover, it simultaneously decreases the amount of land subject to tilling as compared to agricultural uses. And with the adoption of a countywide stormwater ordinance, runoff from new residential developments should be appropriately managed before it reaches our waterways.

One municipality, London Grove Township, had a strong stormwater management ordinance in place since the 1990's and has successfully tracked the stormwater facilities created under that ordinance. As a result, London Grove Township was able to show in its permit application that they were fully addressing their pollution reduction requirements. London Grove's proactive approach years ago to protecting water quality has benefited its residents in that the township does not have to invest in further projects now to meet their regulatory requirements, and in doing so it has protected property values and quality of life for its residents.

We will continue to support the townships in White Clay Creek watershed as the PA DEP reviews their permit applications and help them address any revisions that might be needed. All of the townships and their engineers have been great partners throughout this process and we look forward to working with them to address current and future stormwater impacts in the watershed.

"Any river is really the summation of the whole valley.
To think of it as nothing but water is to ignore the greater part."
Hal Borland, This Hill, This Valley

White Clay Wild and Scenic Maximizes Federal Dollars!



Note: For illustrative purposes the Municipal Match of \$2,347,111 in open space funds was not included in the graphic which would have accounted for 91% of all leveraged funds.

Like all Partnership National Wild and Scenic Rivers, we leverage National Park Service funding with in-kind contributions from state, county, local governments, partner organizations, and the community. In 2017 White Clay partners spent \$94,681 in federal funds to leverage \$2,469,137 cash and in-kind services. In other words, for every dollar of federal funding spent, an additional \$26 of outside funding was leveraged.

A special thanks to donors of monetary assistance and in-kind services provided to the Steering Committee in 2017: NPS (\$95,000), White Clay Creek Restoration Fund Contributions from Delaware tax filers (\$10,750), Christina Watershed Municipal Partnership (\$10,000), Pennsylvania Department of Environmental Protection (\$7,955), Stroud Water Research Center (\$6,895), SUEZ (\$3,000), Dockstader Foundation (\$2,000), Mushroom Farmers of Pennsylvania (\$1,000), Municipal Open Space Funds (\$2,347,111), other charitable donations (\$14,300), and approximately 1,814 hours of professional and volunteer assistance with land preservation, ecological restoration, reforestation planning, events, outreach, mailings, and community volunteer time valued at \$86,000.

PARTNERSHIPS Cost-Effective, Sustainable, Catalysts

2017 Partners: Brandywine Conservancy, Brandywine Red Clay Alliance, Chester County Water Resources Authority, Chester and New Castle County Conservation Districts, Delaware Department of Natural Resources & Environmental Control, Delaware Nature Society, Friends of White Clay Creek Preserve, Friends of White Clay Creek State Park, Natural Lands Trust, Pennsylvania Department of Conservation and Natural Resources, Pennsylvania Department of Environmental Protection, Save Our Water, Stroud Water Research Center, SUEZ, University of Delaware Water Resources Center, White Clay Creek State Park, White Clay Watershed Association, City of Newark, and Franklin, London Britain, London Grove and New Garden Townships, Avondale and West Grove Boroughs, Chester and New Castle Counties.



Tree planting and land stewardship at Franklin Preserve.

Land Preservation

- 178-acres of land preserved in New Garden Township protecting Trout Run, 30 acres of mature woodland, and scenic vistas.
- 450 trees planted on 2.5 acres of agricultural lands along the Middle Branch in Penn Township.
- Invasive species management at the Franklin Preserve tree planting, the New Garden Park stream buffer restoration and the Landenberg Junction trailhead in New Garden Township.

Community Outreach & School Programs

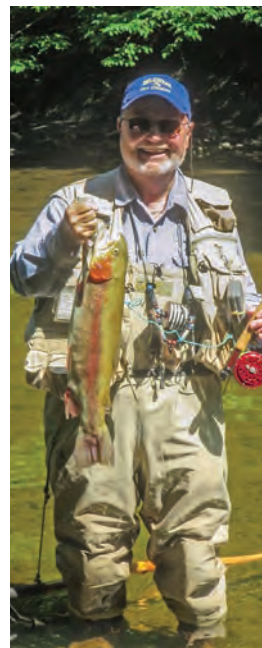
- 900 people attended our largest public outreach event, White Clay Creek Fest, despite the rainy weather.
- Presented White Clay bacteria research to 35 attendees at the Chester County Watersheds Roundtable, March 2017.
- Produced content for the whiteclay.org website, municipal newsletters, Chester County Press, and social media outlets.
- Provided 4 environmental education awards to watershed schools to attend programming led by Stroud Water Research Center addressing the needs of 1,224 students in grades fourth through twelfth.

“When you can blend the community and classroom together, it starts a process of broadening kids’ horizons.”

Michael Garvin, Assistant Principal at Avon Grove Intermediate School

Watershed Monitoring and Projects

- Expanded bacteria monitoring to include seven new sampling sites for a total of 29 sites.
- Collected 150 stream samples during the summer recreational season to analyze E. coli, total coliform, and enterococcus.
- Conducted microbial source tracking at sites with some of our highest bacteria counts to broaden our understanding of contributing sources at these sites.
- Installed three remote stream sensors to collect continuous data on conductivity, temperature, depth, and turbidity.
- Provided relevant field experience in water quality sampling and analysis to two undergraduates/post graduates through summer internships supported by Stroud and Delaware Nature Society.
- Assisted National Parks Service with monitoring development proposals and permit applications for potential impacts to the White Clay Creek and its tributaries as designated streams within the National Wild & Scenic Rivers System.



The Watershed Steering Committee, with our local and state partners, is charged with promoting the long-term protection of the White Clay Creek watershed and its resources in Pennsylvania and Delaware through the implementation of the Watershed Management Plan. The Management Plan Coordinator position was added in 2002 to assist the Committee in project and administrative duties.

The White Clay Creek watershed contains some significant natural areas and outstanding values which enabled the watershed to achieve its federal designation as a Wild and Scenic River. The Wild and Scenic Rivers Program supports projects that protect water quality through community outreach and education, open space preservation, restoration, and research.

White Clay Creek Wild and Scenic Steering Committee Members:

Ed O'Donnell, Delaware Co-Chair, Fly Fishers

Don Peters, Pennsylvania Co-Chair, New Garden Township

David Hawk, Treasurer, White Clay Watershed Association (WCWA)

Thomas Zawislak, President, White Clay Watershed Association

Martha Narvaez, University of Delaware Water Resources Center

Jerry Kauffman, University of Delaware Water Resources Center

Kristen Travers, Delaware Nature Society/WCWA

Douglas Janiec, Sovereign Consulting Inc./WCWA

Martin Wells, London Britain Land Trust/WCWA

John Goodall, Brandywine Conservancy

Erin McCormick, Natural Lands Trust

Rachael Griffith, Chester County Planning Commission

Rick Mickowski, New Castle Conservation District

Aileen Parrish, London Britain Township

April Schmitt, Friends of Pennsylvania White Clay Creek Preserve

Jennifer Egan, Skelly & Loy, Inc.

Mike Zuk, Chester County Conservation District

Tom Coleman, City of Newark

Tracey Surles, New Castle County Special Services

Shane Morgan, Management Plan Coordinator - Staff

Jamie Fosburgh, Chief, National Wild and Scenic Rivers Northeast Region, liaison to Wild & Scenic Watershed Steering Committee

For information on all of our projects and upcoming events:



www.whiteclay.org



[WhiteClayWildandScenic](https://www.facebook.com/WhiteClayWildandScenic)



[WhiteClayWS](https://twitter.com/WhiteClayWS)

Upcoming Community Events 2018



Saturday May 5th 12:00 – 4:00 p.m.

Carpenter Recreation Area, White Clay Creek State Park

The family event of the spring! Celebrate 50 years of Wild and Scenic Rivers, listen to live music, enjoy guided nature hikes, kids crafts, local food trucks, colonial history re-enactors, fly fishing demonstrations, native gardening displays, and MORE. FREE water bottles to first 280 attendees. Co-hosted with White Clay Creek State Park, National Park Service and SUEZ.

11:00am Pre-fest event: Meet at the Newark Reservoir parking lot and learn how the White Clay becomes drinking water as you take a tour with a city official!

Other Events:

- April 14 **White Clay Clean Up**
- TBD **Catch the Rain Workshop**
- TBD **Citizen Science Stream Monitoring Workshop**

www.whiteclay.org



WHITE CLAY CREEK National Wild & Scenic River

Ours to Enjoy. Ours to Protect.

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Apartment 7896

123 Street Address

Cityname, ST 12345-6789



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2017 Update



Creek Fest 2017



Students learning about stream health at Stroud Water Research Center