



# White Clay Creek National Wild and Scenic River

Steering Committee Update 2018

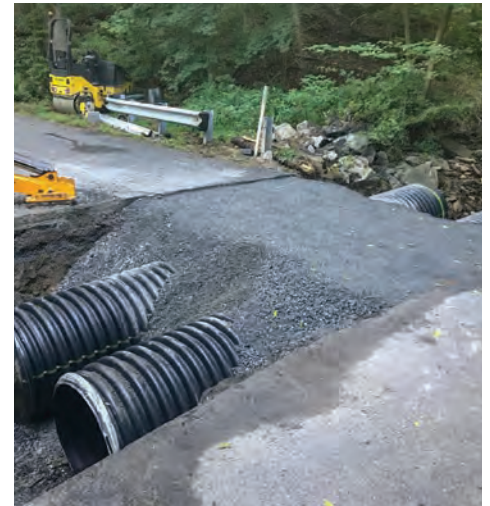


Promoting clean water through outreach, restoration, and land protection.

Welcome to the  
**White Clay Creek  
National Wild  
and Scenic River  
Program Update.**  
The Watershed  
Steering Committee  
presents our 2018  
accomplishments to  
watershed partners,  
legislators, and  
our community.

## Climate Change Means More Rain, More Stormwater, More Problems

The White Clay Creek is a major drinking water source for over 130,000 people in the region, but polluted runoff (also known as stormwater) makes our drinking water more expensive and difficult to treat. Stormwater doesn't come from a single source that can be easily monitored and controlled, like a pipe from a factory. Instead, it is the collective runoff from multiple land uses that reach our waterways untreated. Stormwater is a primary source of pollution to our waterways and in excess creates more flooding hazards and infrastructure damage. Increased development and a warming climate have led to larger and more frequent storm events that further degrade the health of our local waterways and infrastructure. It will take all of us working together on many levels, both regulatory and voluntary, to mitigate the problems associated with stormwater.



*Flooding, construction pollution, and infrastructure damage caused by storm events and excess stormwater runoff.*

The Wild and Scenic Program provides rebates to incentivize voluntary implementation of good stewardship practices that mimic natural processes and help capture and alleviate polluted runoff via a program called Catch the Rain. Collecting and preventing stormwater at its source is the best way to prevent larger problems downstream. Practices that capture and detain rainfall, simulate natural soil filtering, and reduce stormwater volumes and speeds such as rain barrels, rain gardens, pervious paving retrofits or removal of existing paving, conservation plantings, and tree plantings are encouraged. These small projects intended to catch water at its source can 'green' your neighborhood, boost your property values, save you money, and help the White Clay flow clear.

Catch the Rain primarily targets residential property owners and seeks to educate them about the problems associated with stormwater runoff as well as providing a suite of options to help capture that runoff on site. However, we are also seeking projects on homeowner association (HOA) open space lands. HOA lands are often the areas that contain valuable natural resources where developers are not allowed to build. These areas tend to be neglected or managed in a way that adversely impacts the resources they were meant to protect. Potential projects on HOA lands include stream-side tree plantings or stormwater basin retrofits (going from mowed to naturalized basins).

If you or your community are interested in learning more about this cost share program to help the environment, please contact Shane Morgan at [mpc@whiteclay.org](mailto:mpc@whiteclay.org) or visit [catchtherain.org](http://catchtherain.org).



*Left: Poorly managed open space with land mowed up to creek banks.*

*Right: The same area with improved land management including a no mow zone and streamside tree planting.*

## Monitoring Our Waterways

In August 2018, in celebration of the 50th anniversary of the National Wild & Scenic Rivers systems, we were awarded \$11,321 in grant funding to bolster stream monitoring efforts in White Clay Creek. Funds came from the Swim Splash Smile and the National Park Foundation's Love Your Park campaign, a pilot program that aims to increase volunteer stewardship of wild and scenic rivers through partnerships with community groups.

This funding supports our physical monitoring by volunteers and our network of stream sensors which take continuous measurements of electrical conductivity, water temperature, water depth, and turbidity. Citizen scientists (trained volunteers) and student interns help with sensor management and troubleshooting, uploading and analyzing data, and collecting grab samples during base flow (no rain) and storm flow events for specific pollutants such as nitrate, orthophosphate, total suspended solids, and chlorides. These data are providing baseline information on streams that haven't been assessed by state agencies and will ultimately help to detect changing water quality trends over time and inform decisions regarding land use, land management, and land protection – all of which have a significant impact on water quality and stream health.



Left: Marion Waggoner and Dave Yake, citizen scientists managing a sensor station.  
Right: Kennett High School student earning volunteer service hours cleaning sensor stations after summer storm events.

## 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.

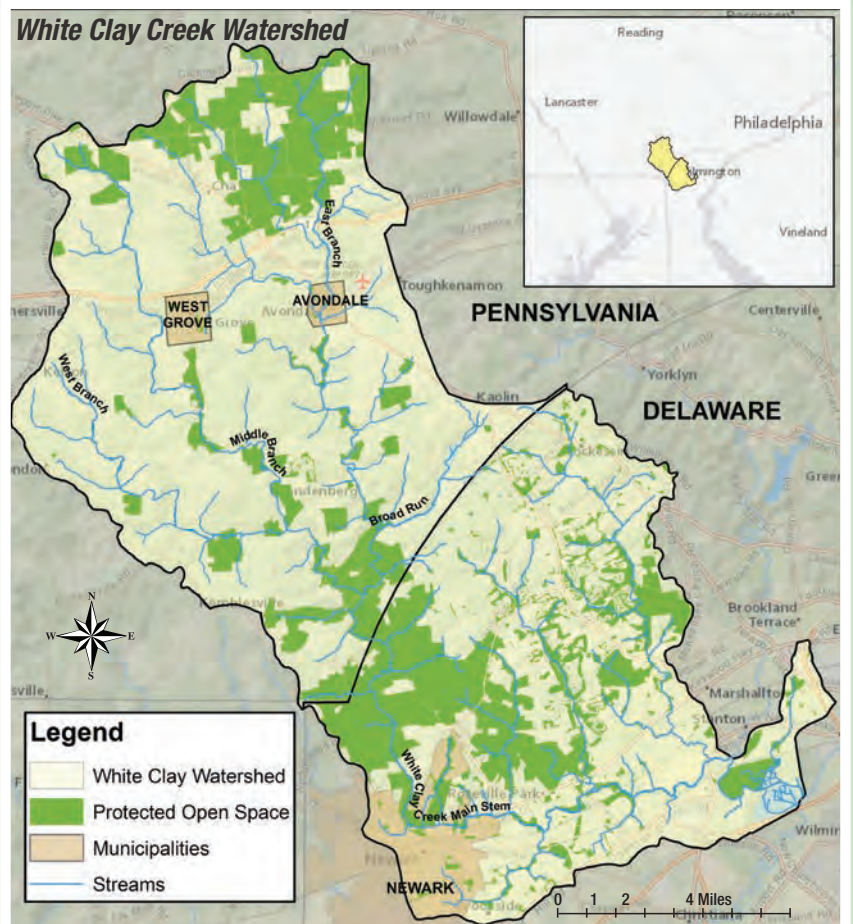
Most National Wild and Scenic Rivers flow through federal lands, but Partnership Rivers flow through privately held lands or lands owned by local or state governments. The National Park Service provides funds and staff assistance to communities and local and state representatives to protect and manage 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.

## PARTNERSHIPS Cost-Effective, Sustainable, Catalysts

2018 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, Pennsylvania Department of Environmental Protection, Stroud Water Research Center, SUEZ, University of Delaware Water Resources Center, 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.



## Road Salt: An Overlooked Pollutant

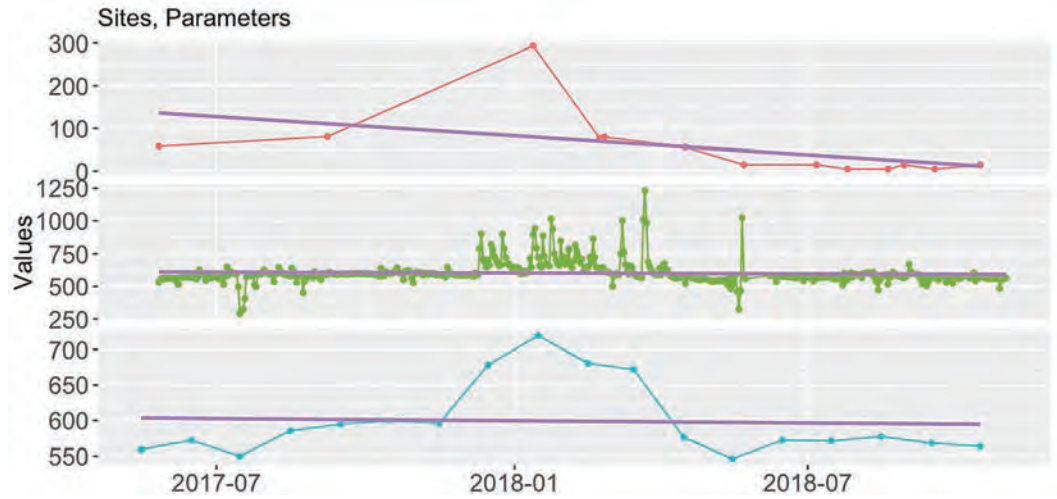
One of the less recognized pollutants we are monitoring, but also an increasing threat to water quality – is chloride that comes from road salting. Every year salt is dumped in mass on roads and other paved surfaces to help de-ice and improve safety. However, once applied to the ground it is then either caught in the snowmelt as runoff when temperatures return back above freezing, or it is brushed into the environment by the cars driving over it.

Road salt, most commonly comprised of chloride and sodium (or chloride and another substance), dissolves readily in fresh water releasing chlorides into the environment. Chlorides are a growing concern to water scientists because they don't break down, and once they're in a water body there are no biological processes to remove them. Natural chloride concentrations in fresh water are between 1 and 100 ppm (parts per million), that's at or less than 0.01%.

Chlorides can be toxic to aquatic plants and animals when levels go above these natural background concentrations, and they can also remain in the soil where they accumulate and become toxic to terrestrial plants and animals. Chlorides interfere with an organisms ability to regulate levels of salt and other substances within their bodily fluids. The effects vary by species type and location, but animals such as frogs and amphibians who lay eggs in "vernal pools," or isolated bodies of water, may be especially at risk, as those water sources have no way of flushing out excess chlorides. Additionally, salt concentrations tend to spike in early spring (with the thawing of ground and snowmelt) and summer (when evaporation exceeds precipitation thereby concentrating salt), two critical times of year for amphibian reproduction and development.

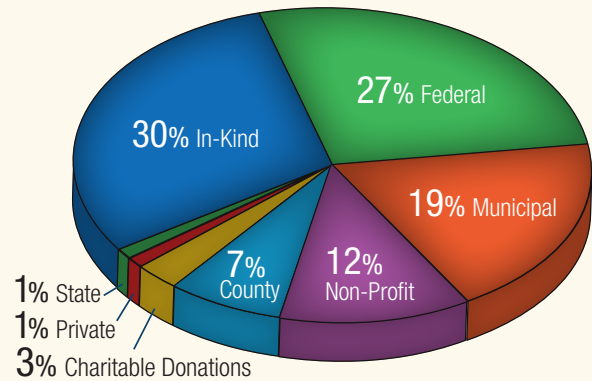
To understand the potential issues with road salt, we are monitoring our local streams for chloride impacts. The graph above illustrates how average conductivity (a measure related to the level of dissolved salts) shows large spikes over the winter season as melting snow and rain flush salt into streams and groundwater. These high peaks – which correspond to winter rain & snow events – are not seen during other times of the year. Alternatively, in the summer when it rains, we tend to see a decreases in conductivity as the water becomes diluted by the summer rain.

The long-term effects of chloride are still under study; as is research to find the most environmentally sound way to ensure public safety. Until a better solution is discovered try shoveling early and as much as possible to minimize the need for deicers, sweep up any excess salt and reuse or dispose of it in the trash, and refrain from using kitty litter, ashes, fertilizer or any product containing urea to deice. This adds both salts as well as other pollutants to the waterway. Instead try spreading pine needles or birdseed to add more traction to icy walkways.



Sensor site showing data from May 2017 – October 2018. The red line shows chloride concentrations from stream samples. The green line shows the daily average conductivity. The blue line shows the monthly average conductivity from our sensor station. It is clear from all three of these graphs that conductivity (a proxy for chloride) is higher and more variable during the winter months.

## White Clay Wild and Scenic Maximizes Federal Dollars!



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 2018, White Clay partners leveraged \$99,000 in federal funds to \$265,275 cash and in-kind services. In other words for every dollar of federal funding spent an additional \$2.65 of outside funding was leveraged.

A special thanks to donors of monetary assistance and in-kind services provided to the Steering Committee in 2018: NPS (\$99,000), White Clay Municipalities (\$67,680), Stroud Water Research Center (\$28,140), Chester County (\$25,500), National Park Foundation (\$11,321), Private donors (\$10,988), Brandywine Red Clay Alliance (\$6,000), SUEZ (\$4,000), Delaware Department of Transportation (\$2,646) and approximately 2474 hours of professional and volunteer assistance with land preservation, ecological restoration, reforestation planning, events, outreach, mailings and community volunteer time valued at \$109,000.



## Land Preservation

- Supported a conservation and trail easement on 137 acres in New Garden Township; purchased with township and county open space funds.
- Provided land stewardship services at three watershed properties to protect and promote establishment of streamside buffers.
- Supported installation of buffer planting, grassed waterway and contour terracing on a farm in Penn Township, PA.
- Supported installation of 1060 linear feet of horse fencing, improved livestock stream crossing, and installation of 1-acre riparian buffer along 600 linear feet of ecologically valuable stream along the upper East Branch in London Grove Township, PA.

## Community Outreach & School Programs

- Held our annual White Clay Creek Fest; 1600 event attendees; 30 exhibitors.
- Presented at the Brandywine Christina Watershed Conference on the *White Clay Creek Partnership Wild and Scenic River Model*.
- Hosted a *Catch the Rain* workshop in London Grove Township.
- Produced content for the whiteclay.org website, municipal newsletters, Chester County Press, and social media outlets.
- Provided environmental education awards for educational field trips to Stroud Water Research Center addressing the needs of 824 students.
- Facilitated the collaboration of municipalities, government agencies and other stakeholders to restore and protect the water quality of streams in the White Clay Creek watershed as part of the Christina Watersheds Municipal Partnership.

## Watershed Monitoring and Projects

- Monitored 30 sites for fecal indicator bacteria concentrations.
- Conducted microbial source tracking at select sites to broaden our understanding of contributing fecal pollution sources.
- Managed four remote stream sensors to gather continuous data on conductivity, temperature, depth and turbidity.
- Conducted monthly analysis of nutrients, sediment, chlorides and bacteria at four locations.
- Provided field experience to two undergraduates/post graduates through summer internships supported by Stroud and Delaware Nature Society and two University of Delaware graduate students.
- 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 this jewel of a landscape 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

Kristen Travers, Delaware Nature Society/WCWA

Douglas Janiec, Sovereign Consulting Inc./WCWA

John Goodall, Brandywine Conservancy

Erin McCormick, Natural Lands

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, University of Maryland Environmental Finance Center

Mike Zuk, Chester County Conservation District

Tom Coleman, City of Newark

Tracey Surlis, 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

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**For information on all of our projects  
and upcoming events:**



[www.whiteclay.org](http://www.whiteclay.org)



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



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

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## Upcoming Community Events 2019



**Saturday May 4<sup>th</sup> 12:00 – 4:00 p.m.**

### **Carpenter Recreation Area, White Clay Creek State Park**

The family event of the spring!

Celebrate your local Wild and Scenic River. Listen to live music by Unity Reggae, watch *Birds in Action* with Animal Behavior and Conservation Connections, 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 200 folks.

Co-hosted with White Clay Creek State Park, National Park Service and SUEZ.

**For More Community Events Visit:**

**[www.whiteclay.org/new-events](http://www.whiteclay.org/new-events)**



**WHITE CLAY CREEK**  
**National Wild & Scenic River**

*Ours to Enjoy. Ours to Protect.*

PO Box 10, Landenberg, PA 19350



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