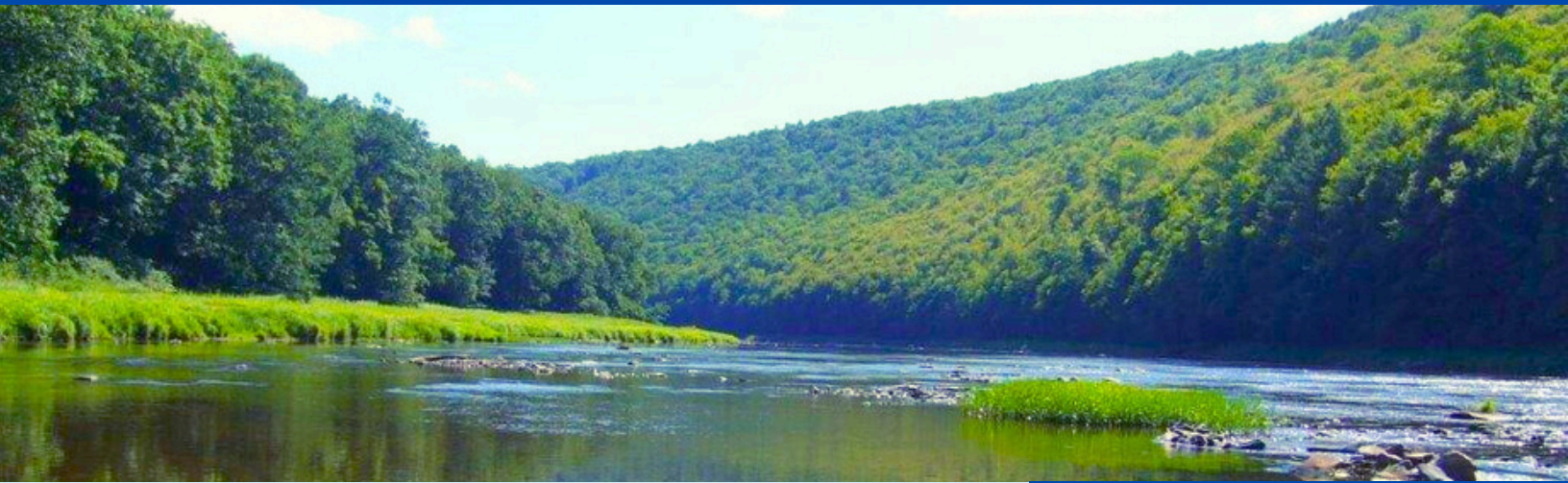


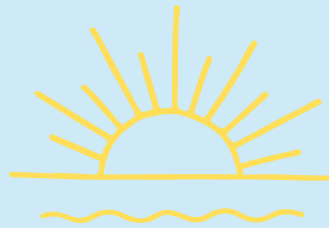
SUMMER 2024 E-BLAST



CLARION CONSERVATION DISTRICT



Sweet Summertime



Though it seems like we've been enjoying summer weather for many months already, it is now officially ~summer~! Sit back and relax in the sunshine and enjoy reading what the Clarion Conservation District has been up to this past spring. We've made quite a splash in completing projects and engaging the local community!

Be sure to check out the last page for more information on events we have planned this summer including a Natural Pigments Art Exhibition. Stay tuned for more information on an upcoming coldwater fish conservation program/field day and a river clean-up!

Our main goal at the District is to protect Clarion County's natural resources. Thank you for your interest in our efforts!

CONTENTS

- Summer Interns
- Recap of Spring 2024 Events
- Watershed Updates
- Agriculture Updates
- DGLVR Updates
- E&S Updates
- Featured Species: Brook Trout (*Salvelinus fontinalis*)
- Seeking Rain Garden Volunteers
- Upcoming Events

INTRODUCING CCD'S SUMMER INTERNS

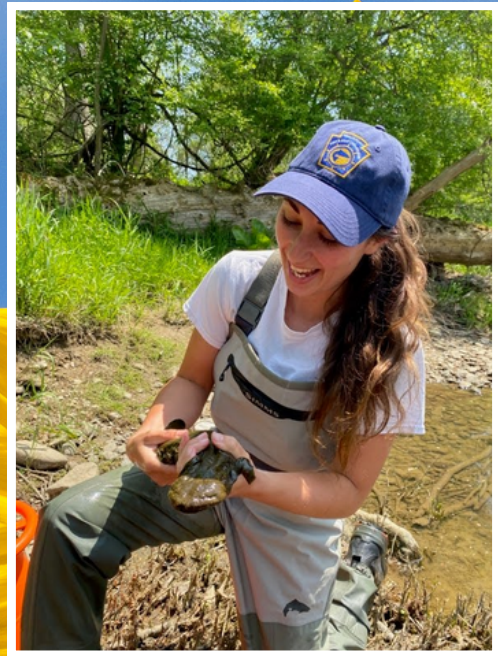
by Hannah Bequeath, Education/Outreach Coordinator

Addie Byrum



My name is Addie Byrum and I'm very excited to intern with the Clarion Conservation District this summer! I just finished my B.S. in Ecology & Evolution at the University of Pittsburgh, and especially enjoyed my field courses in fish and wetland ecology at Pitt's Pymatuning Lab of Ecology. I'm particularly passionate about the freshwater conservation and restoration work that the CCD does and have already learned so much since starting on June 3. I previously worked as a college language instructor for 8 years and hope to use my interactive and collaborative teaching skills to teach (and learn from!) local kids and community members as part of the CCD's public education and outreach programs. Ultimately I hope to work with the US Forest Service one day and spend as much of my life as possible outside! In my free time I like to hike with my chiweenie Arya, dance and teach Brazilian zouk (a partner dance similar to salsa), travel, and continue to learn more about the beautifully complex ecosystems of western PA.

Rebecca Fagley



Hi there! My name is Rebecca, I am from Stoneboro, PA. I have been fortunate to have grown up in a family of outdoorsmen; spending much of my childhood outdoors where I have fostered a deep appreciation for the natural world. I graduated from Clarion University of Pennsylvania with a B.S. in Environmental Biology. Since that time, I have worked extensively in the field as a Nature Director with Boy Scouts of America, a Lake Technician with the North Lakeland Discovery Center, and most recently as a Wildlife and Fisheries Biologist Aide with the Pennsylvania Fish and Boat Commission. My position with the PFBC, focused on nongame/threatened and endangered species propagation and care of freshwater mussels, non-game fishes, reptiles, and amphibians of this beautiful state we call home. In my free time you can find me exploring the great outdoors, hiking, kayaking, working on some sort of craft or project, all while surrounded by nature, loved ones and my fur babies. I am eager to be part of the Clarion Conservation District this summer where I can contribute to the mission and vision to enrich lives and inspire an ethic of care for Clarion County's natural resources.

RECAP OF SPRING 2024 EVENTS

by Hannah Bequeath, Education/Outreach Coordinator

April- The second program in the Something in the Orange series took place featuring a **Paint Making Workshop**. About 20 participants learned how to make watercolor paints from natural iron oxide pigments collected from abandoned mine drainage (AMD) treatment system ponds at the Clarion County Park in Shipperville, PA. About 190 local high school students attended the **7th Annual Earth Day at Cook Forest** event hosted by the District. The special station featured falconry by Dr. Kurt Regester of PennWest Clarion University. An **Earth Week Litter Clean-up** took place near State Game Lands 72 by CCD staff, PennWest Clarion University students, and a few community members. Seven bags were collected, some weighing around 30 lbs+ each! An interactive table on **'Tree Buds for Budding Foresters'** was provided for **North Clarion High School's Arbor Day event**. Keystone 1 won first place at the **Tri-County Envirothon** at Clear Creek State Park. Students on the winning team included; Mariah Beary, Kylee King, Andrew Custer, Jovia Kinsler, and Lauren Roman. Brookville 1 won second place and Keystone 2 won third. Thirteen teams competed from 7 different high schools in Clarion, Forest, and Jefferson Counties including Keystone, Union, Redbank, North Clarion, West Forest, Brockway, and Brookville.

Below: Community members of all ages gather at the Clarion County Park in Shipperville, PA to learn from local artist, Hillary Lefay, how to make paint from natural iron oxide pigments collected from abandoned mine drainage (AMD) treatment system ponds.



Below: About 190 local high school students attend the 7th Annual Earth Day at Cook Forest event, featuring information on reducing plastic pollution and a special station on falconry by Dr. Kurt Regester of PennWest Clarion University & his student assistant, Reagan King.

Below left: PennWest Clarion University students join CCD staff for an Earth Week Litter Clean-up near State Game Lands 72.



Left: Keystone 1 - 1st Place at the Tri-County Envirothon Winners & 25th Place at the PA Envirothon

Right: Keystone 2 - 3rd Place Tri-County Envirothon Winners



RECAP OF SPRING 2024 EVENTS

by Hannah Bequeath, Education/Outreach Coordinator

May- A scout group, Wolf Den with Pack #51, came to the CCD office to learn about native plants and growing zones and then helped weed the public, educational **rain gardens**. CCD held a station at the **Redbank Valley Primary & Intermediate School Springfest** days on water quality and macroinvertebrates. About 40 people attended the **Beginner's Mushroom Hike** in Cook Forest State Park hosted by CCD, PA Mushroom Co., and the Western PA Mushroom Club. Financial support was provided by Intermediate Unit #6 as part of their Remake Learning Days program. A **Elementary Trout Release** event was held for students from Clarion Area, North Clarion, and Immaculate Conception at Cook Forest State Park. A few hundred trout were raised in their classrooms and released into Tom's Run. CCD provided a **compass reading activity** at the event. A **Native Seed Swap & Talk** event was held at the CCD office to celebrate PA Native Species Day with a handful of community members who participated and learned about gardening with native species. Keystone 1 competed at the **PA Envirothon** representing Clarion County and ranked 25th out of 63 teams (see team photo on previous page)!

June - June was filled with participation in local library summer reading programs as the theme was "Adventure Begins at Your Library". A **Discovery Walk** program was held at the Story Walk Trail in Rimersburg in partnership with the Eccles-Lesher Memorial Library. CCD provided programs at the Clarion Free Library in Clarion, PA as well featuring **Streams / Erosion & Sediment** and one upcoming on June 28th featuring **Who Lives in Our Watersheds**.

Below: Local students volunteering at the CCD public rain gardens, learning about water quality and macroinvertebrates, and releasing hundreds of classroom raised trout into Tom's Run at Cook Forest State Park.



Below: Learners of all ages gather for a Beginner's Mushroom Hike at Cook Forest State Park with CCD, PA Mushroom Co., and the Western PA Mushroom Club for IU6's Remake Learning Days initiative.



Left: Discovery Walk in Rimersburg, PA.

Below: Stream / E&S Program at the Clarion Free Library in Clarion, PA



Watershed Updates

by: Shane Hofius, Resource Technician/Watershed Specialist

R3 Grant Received

Did you hear the good news?!



<https://www.patroulintheclassroom.org/brook-trout.html>

The Clarion Conservation District has been awarded a Recruitment, Retention, Reactivation (R3) Education Grant from the Pennsylvania Fish & Boat Commission (PFBC)!

PFBC established the R3 Education Grant Program (R3 Grant) to support partner organizations providing hands-on education for the recruitment, retention, and reactivation (R3) of anglers and boaters in Pennsylvania. Accessible and inclusive learning opportunities increase fishing and boating knowledge, confidence in skills, facilitate social support, and empower participants to enjoy the waters in their communities. Stay tuned!

Riparian Buffer Planting at the McCanna Run Project



A riparian buffer planting was completed by the Clarion Conservation District on Tuesday, April 23rd, at the McCanna Run Project where Summerville Drive in Strattanville crosses McCanna Run; an exceptional value (EV), cold water fishes (CWF), wilderness trout stream. Native dogwoods, viburnums, elderberry, and more were planted along the stream to help hold the streambank in place and prevent erosion and sediment loading into the stream while also providing food and habitat for wildlife. To read more about the McCanna Run Project check out the “Watershed Updates” page in our Spring 2024 Newsletter.



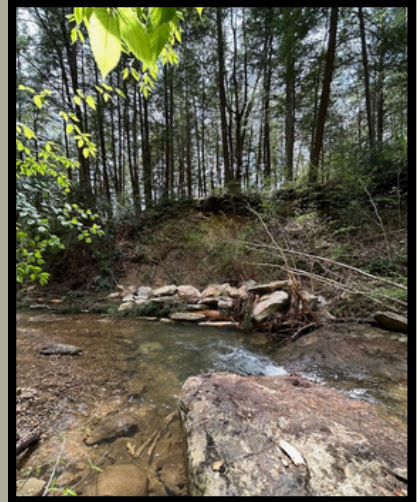
Watershed Updates

by: Rebecca Fagley, Summer Intern

McCanna Run Stream Restoration

On May 7th phase two of the McCanna Run Watershed restoration efforts was completed. Conservation District Staff from Clarion managed the project with Trout Unlimited and Pennsylvania Game Commission-Habitat Management division provided the heavy equipment operation and materials to restore 560 linear feet of streambank suffering from severe erosion at the mouth of McCanna Run. An exceptional value (EV), cold water fishes (CWF), wilderness trout stream in Millcreek Township, Clarion County, PA. This project is 100% situated on public land on State Game Lands 74 where the Baker Trailhead intersects with Mill Creek.

A total of 12 large wood additions structures (LWA) were added across 560 linear feet of streambank, including root-wad deflectors and rootwad revetments. The project was managed by Trout Unlimited with project oversight by Conservation District Staff from Clarion. while Pennsylvania Game Commission-Habitat Management division provided all equipment and materials.



Looking ahead in the McCanna Run Watershed restoration efforts, additional project(s) are needed to complete the restoration of the entire McCanna Run watershed.

WHY RESTORE STREAMS??

The waters of our county are vitally important to the wellbeing of our environment, economy and citizens. Properly functioning streams provide clean drinking water, aquatic habitat and endless recreational opportunities. Many of our streams in Clarion County have been altered either directly or indirectly by changes that have occurred in the surrounding landscape. Stream restoration projects employ a wide range of designs and techniques to stabilize eroding stream banks and to restore the natural and productive aquatic habitats.

Restoration of stream resources occurs for many reasons. You might be interested in goals of:

- Reducing and preventing bank erosion,
- Increasing your property value,
- Improved fishing & fish habitat
- Maintaining and improving water quality and quantity.
- Reduce sediment loading

Signs to look for:

- Erosion
- Sediment loading
- Channelization
- Lack of riparian buffer or flood area
- Lack of fish and other aquatic life where previously found

Lots of resources are available as you evaluate your streams health and your options for restoration. Here at the Clarion Conservation District we want to help you with these goals! Funding opportunities may be available.

Please Contact Watershed Specialist, Shane Hofius, via email or phone:

shofiusccd@gmail.com or (814)-297-8036

Watershed Updates

by: Rebecca Fagley, Summer Intern

PA
State Fish

Other Project Updates:

In early June, the Conservation District electro-fished an unnamed tributary to Hemlock Creek, an Exceptional Value Cold Water Fishery (EV-CWF). The Hemlock Creek watershed is a known wild trout breeding area hosting natural reproduction for Brook, Brown, and Rainbow Trout. Prior to our sampling efforts this tributary was last assessed in 2007 to determine if it could sustain aquatic life and was designated as Attaining for Aquatic Life Use (ALU) by the Department of Environmental Protection (DEP).



The purpose of our efforts was to assess fish population and health in addition to determining if this unnamed tributary contained a naturally reproducing population of wild trout. Our survey yielded several native Brook Trout (*Salvelinus fontinalis*) from different age and size classes, qualifying it as a Wild Trout Natural Reproduction stream that will now be afforded additional protections to sustain the pristine habitat.

ELECTROFISHING



Electrofishing is a scientific survey method used to study the ecological health of a waterbody and understand species diversity by sampling fish populations to determine abundance, density, and species composition. Temporarily stunning the fish for identification purposes. Electrofishing aids in invasive species monitoring, guides fisheries management decisions, and supports environmental impact studies. This method also assists habitat restoration efforts and educates the public about aquatic ecosystems.

Watershed Updates

by: Rebecca Fagley, Summer Intern

Other Project Updates:

Little Coon:

The Little Coon system was constructed in 2007, making it almost 18 years old. Over time the iron oxide sludge builds up and vegetation cultivates.

As iron build up accumulates it reduces the retention time within the treatment unit, compromising the efficiency of the system. The buildup and growth of organic material within the “wetland” portion of the system is the only other major concern within the aerobic treatment system. Channeling can cause significant short-circuiting affecting the detention time, contributing to erosion of the embankments.

Rehab and maintenance will commence July 12th on the Passive Treatment System on Little Coon Run located in the northern part of the county on State Game Lands 24. To ensure continued effective treatment the iron oxide sludge and excess vegetation will be cleaned out in partnership with Hedin Environmental. The estimated completion is October 21st. This is part of an ongoing Growing Greener grant to conduct maintenance on the existing acid mine drainage (AMD) passive treatment system.

White's Run Assessment :

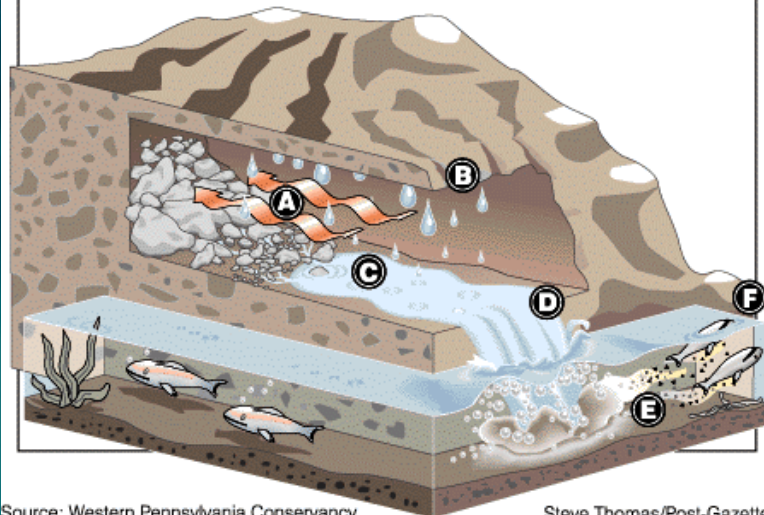
The Clarion Conservation District was recently awarded an Appalachian Region Independent Power Producers Association (ARIPPA) grant from WPCAMR (Western Pennsylvania Coalition for Abandon Mine Reclamation) to fund watershed assessment on Whites Run, A significantly impaired tributary on the lower portion of Mill Creek approximately 2000 feet from Mill Creek's confluence with the Clarion River, located in east central Clarion County, Pennsylvania. The watershed was subject to intensive mineral resource mining operations which have left the stream impaired.

This assessment will pinpoint the source(s) of impairment and determine the pollutants(s) entering the stream. A watershed implementation plan will then be developed to characterize the impairment and any AMD resolutions that may be achieved.

Acid Mine Drainage

Here's a look at what AMD is and how it affects the surrounding environment.

- Ⓐ During mining, pyrite is exposed to oxygen.
- Ⓑ Ground water seeps into the mine.
- Ⓒ Oxygen, water and pyrite react to form sulfuric acid and in turn dissolve metals from the rocks.
- Ⓓ Water drains out of the mine.
- Ⓔ Dissolved metals react with oxygen and fall out of solution into the stream water, turning a bright color.
- Ⓕ Aquatic animals and plants are killed by the drainage.



Source: Western Pennsylvania Conservancy

Steve Thomas/Post-Gazette

Watershed Updates

by: Rebecca Fagley, Summer Intern

New Watershed Organization in Southern Clarion County:

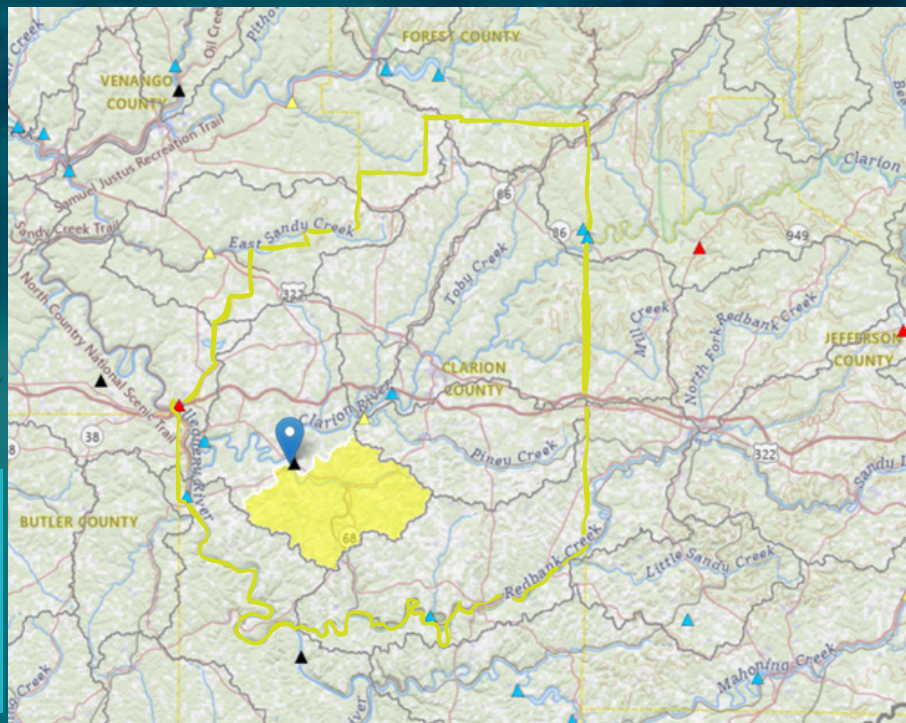
The first meeting to form a group to look at cleaning the waters of southern Clarion County took place on Wednesday, May 29th, 2024 at the Licking Township Building in Sligo, PA. Twenty-six people gathered to discuss the possibility of forming a group to address the issues that affect the waterways of southern Clarion County’s Licking Creek Watershed (see watershed on map below in yellow). Speakers included: Shane Hofius, Watershed Specialist at the Clarion Conservation District; The Mill Creek Coalition; Iron Furnace Chapter of Trout Unlimited, Bob Hedin, Founder & Owner of Hedin Environmental; and Janie French, Headwaters Charitable Trust.



The advertisement flyer for the meeting stated, “Pennsylvania’s waterways have incredible beauty. It is amazing to think about what they were like before mining affected them in Clarion County. Cleaning these waters is possible and there is funding available to do so. Please consider participating and spread the word about this grass roots initiative to make our waterways wealthy with wildlife and beauty again.”



A special thanks to everyone that attended, the speakers, and Rob Bodenhorn for encouraging and informing residents of the impact, value and importance towards restoring and improving water quality starting in your own backyard.



A follow up meeting will be held on 7/10/2024. Details to be provided at a later date.

The meeting was lead by Rob Bodenhorn. Please contact Rob at 814-227-9216 if you have any questions or are interested in joining the group.

Agriculture Updates

by Hannah Bequeath, Agriculture Conservation Technician (ACT)



The Clarion Conservation District is considering the financial effectiveness of keeping the no-till planter that is available for rent to producers in Clarion County. If interested, please speak up now by renting the drill and/or filling out an anonymous survey.

Online Survey Link: <https://forms.gle/2PLtZv5BQbmMwf969>

****ONLY FOR PRODUCERS IN CLARION COUNTY****

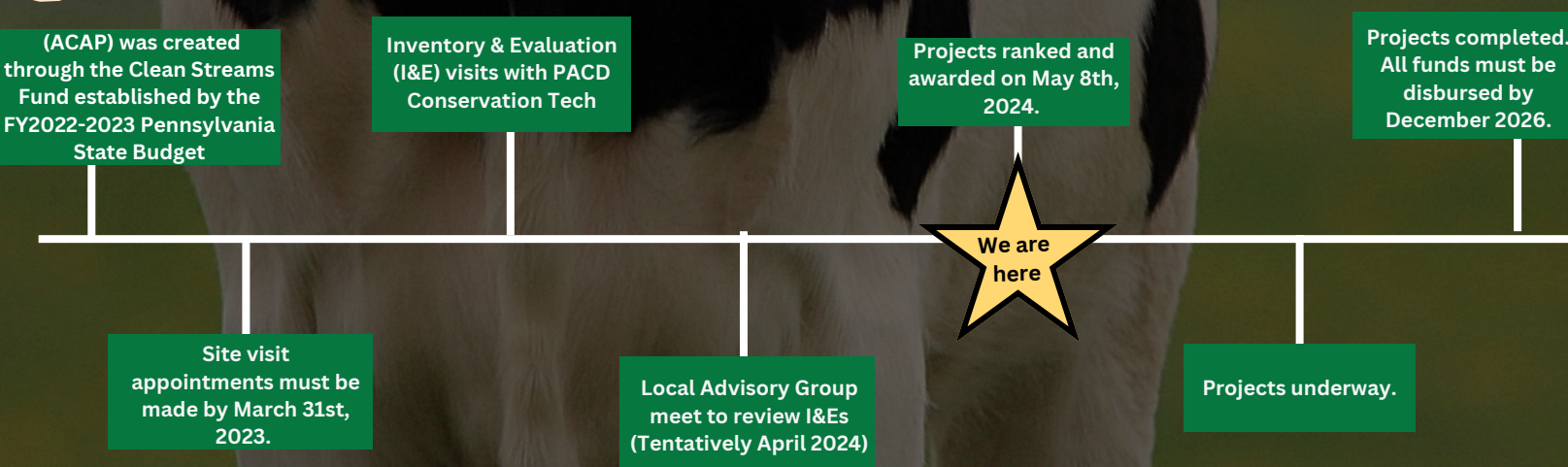
Clarion County ACAP Projects have been awarded to the following local farms:

- Henry’s Dairy - Knox, PA
- Greenawalt’s Beef - New Bethlehem, PA
- Nexgen Dairy at Sweet Breeze Farms - Mayport, PA

The Agriculture Conservation Assistance Program (ACAP) was created through the Clean Streams Fund established by the FY2022-2023 Pennsylvania State Budget. ACAP provides financial and technical assistance for the implementation of best management practices (BMPs) on agricultural operations within the Commonwealth.



Agriculture Conservation Assistance Program (ACAP) Time-line for Clarion County



What Happens When Animal Manure Gets into Our Water Resources?

by Hannah Bequeath, Agriculture Conservation Technician (ACT)



What is Manure Made Of?:

Manure contains nutrients, organic matter, and water. Manure is recognized as an excellent source of the plant nutrients **nitrogen (N)**, **phosphorus (P)** and **potassium (K)**. Other nutrients such as calcium (Ca), magnesium (Mg) and sulfur (S) may be found in manure and are beneficial to the soil if a deficiency exists. The nutrient content of manure will vary depending on animal type and diet, type and amount of bedding, manure moisture content, and storage method. Nutrients in manure are less concentrated than in commercial fertilizers. The most accurate estimate of a farm's manure nutrient content comes from sampling and manure testing.

The organic matter is primarily undigested feed and bacteria in the feces. "Dry" solid manure can be 20-40% water and manure pumped from a liquid or slurry storage is about 90% water. Manure composition varies greatly among animal species and even within species due to varying farm management practices.

How Does Manure Get into Our Water Resources?:

Nutrients from crop fields or manure stacks/defective manure storage facilities reach water sources via **runoff or leaching**. Nutrient runoff occurs when nutrients dissolve in water that flows over the soil surface or when water carries particles of soil containing nutrients to surface water (ex. stream or river). Nutrient leaching occurs when nutrients dissolve in water that is flowing downward through the soil profile. Applying an excess amount of manure than what crops need, applying too close to water sources or allowing livestock to walk directly into waterways (ignoring setback recommendations), not having the proper storage/hauling method, or applying at the wrong time (before rain/on frozen ground), increases the chances that nutrients will enter the water.

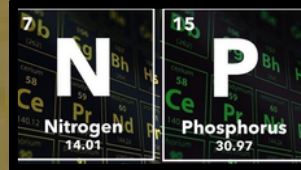
Negative Impacts of Manure on Water Quality:

N, P, and pathogens are the most common water pollutants from manure on farms. Once applied to a crop field, a complex network of chemical and biological processes, referred to as the nitrogen cycle, takes over. Organic N from sources like manure or crop residue is mineralized to **ammonium (NH₄⁺)** and eventually **nitrate (NO₃⁻)**. Nitrate is soluble and can be carried with runoff or leach downward through the soil profile. When NO₃⁻ is carried down below the root zone, it can no longer be captured by plants and used for crop or grass growth. **This puts groundwater resources; a primary source of drinking water in many parts of the country, at risk for contamination.** Organic N and NH₄⁺ are more likely to be associated with soil particles or soil aggregates and may be carried with eroded soil in runoff to surface water bodies. High ammonia levels in surface water are detrimental to aquatic organisms.

P also cycles through organic and inorganic forms and all, or nearly all, P applied through manure is considered available to plants. Unlike NO₃⁻, P binds tightly to soil particles. Rain events capable of eroding soil particles are likely to carry P along with the runoff. To a much lesser extent, P can be soluble (dissolved in water) and carried in runoff, especially when soil P builds up to very high levels. Most P is carried to surface water bodies along with soil. P is not generally a significant leaching risk because of its tight bond to soil particles. There are a few situations, such as soils that are saturated with P or where subsurface (tile) drainage is used, where the risk of P leaching may be substantial.

N and P are necessary for plant and animal life in surface water bodies; however, a large influx of N, P, or both moves the system out of balance. This enrichment is known as **eutrophication** (pictured right). Aquatic plants and algae grow rapidly under eutrophic conditions and when they die, the decomposition process depletes oxygen dissolved in the water, a condition known as **hypoxia**. Without adequate oxygen, fish and other aquatic life die or move to non-hypoxic areas. Another concern is that certain types of algae release toxins that can be harmful to people, pets, or livestock. Excessive algae growth, toxic or not, is referred to as a **harmful algal bloom**. In addition to nutrients, the large amount of organic matter in manure also depletes water of dissolved oxygen if a significant amount of manure reaches the water body.

Microbes that are capable of causing diseases are called **pathogens**. Some of the pathogens associated with animal manure include: *Escherichia coli* (E. Coli), *Campylobacter* spp., *Salmonella*, and *Listeria*. Waterborne pathogens make water unsuitable for wildlife and humans.



DIRT, GRAVEL, & LOW VOLUME ROAD (DGLVR) UPDATES

by Alicia Ramsey, DGLVR Technician

2024 PA SAFETY DAYS



Upcoming Environmentally Sensitive Maintenance (ESM) Trainings:

- July 10 & 11 (Clinton County)
- July 31 & August 1 (Beaver County)
- August 14 & 15 (Perry County)
- September 11 & 12 (Crawford County)
- September 25 & 26 (Bradford County)
- October 23 & 24 (Fulton County)
- November 6 & 7 (Lancaster County)

PA One Call Events:

- **June 26th: Clarion County Utility Coordination Committee (UCC) Meeting**
 - 9 am at the Clarion Conservation District Office (249 S. 2nd Ave. Clarion, PA)

LTAP Course:

- **July 30th: Erosion & Sedimentation Control (RS-M22-B1)**
 - 8:00am - 12:00pm, Clarion Township Building (17382 Rt. 322 Strattanville, PA)
 - If interested, please visit the LTAP website and register for this class.
 - *** Questions? Please call 1-800-FOR-LTAP for assistance. ***
 - Email: LTAP@pa.gov , Website: <https://gis.penndot.pa.gov/LTAP/>

October 8th-10th: Center for Dirt & Gravel Roads Studies 2024 Annual Maintenance Workshop

- Located in Dubois, PA. More info & registration coming soon

Clarion County DGLVR Projects: 3 complete so far this year/season!

- Pictures coming soon in the Fall Newsletter!

For more information about the DGLVR Program, visit The Penn State Center for Dirt, Gravel, and Low Volume Roads Studies website at dirtandgravel.psu.edu and/or contact the District's DGLVR Technician, Alicia Ramsey, at 814-393-6139 (office), 814-221-4094 (cell), or ramseyccd@gmail.com.

EROSION AND SEDIMENT (E&S) UPDATES

by Matt Kerr, E&S Technician

- **National Pollutant Discharge Elimination System (NPDES)**

- Received 3 general permit submissions
 - Sheetz - Clarion, PA
 - Ramada Demo
 - New Warehouse Construction

- **E&S Control Plans:**

- Received 8 new plan submissions
 - New Garage
 - 2 Waste Areas
 - Gasline Replacement
 - Silo-Pad
 - New Storage Building
 - Hardware Buildings
 - Farm Buildings

- **Chapter 102 Complaints:**

- 1 received and under investigation

- **Chapter 102 Technical Assistance:**

- 23 contacts regarding various projects

- **Attended Chapter 102 Basic Training**



Pictured Above: On June 13th, the District attended the Clarion Free Library's summer reading program as a guest speaker on Streams & Erosion/Sediment. Students ages 6-9 had the opportunity to meet CCD's E&S Tech and DGLVR Tech and learn about how their jobs help to keep our local streams clean!

For more information on erosion & sediment permits and plans, please visit our website www.clarionconservation.com/e-s or contact our E&S Technician, Matt Kerr, at mkerrccd@gmail.com or call 814-393-6018 (office) or 814-221-1941 (cell).



Brook Trout found electrofishing with Andrew Turner's Fish Ecology class at McCrea Run (Photo by Addie Byrum).

FEATURED SPECIES: BROOK TROUT (*SALVELINUS FONTINALIS*)

by Addie Byrum, Summer Intern

General Description: The Brook or Speckled Trout (*Salvelinus fontinalis*) (the "brookie") is the official state fish of PA and the only stream trout native to PA. Unlike other sought after (though non-native) salmonids like the brown and rainbow trout, the brook trout is technically a char, meaning that it has a dark body with light spots and requires cooler water. It is more closely related to the Arctic Char and Lake Trout than to rainbow and brown trout. Brook trout have a dark gray-green back with vermiculated ("wormy") markings from head to tail and a lighter yellow-orange belly. Breeding males have a bright red belly and black pigment around the mouth. One tell-tale sign of a brookie is scattered pink-red dots along the sides surrounded by light blue haloes. The pectoral, pelvic, and anal fins are red-orange with white on the edge then black lines. The dorsal and caudal fins have black blotches and the tail is less forked than that of most salmonids (almost square!).



Red spot with blue halo
(Photo by Matt Kerr)

Range & Habitat: Brook trout are native to eastern North America including most of eastern Canada and the northeastern US. As members of the char genus (*Salvelinus*), they are restricted to higher latitudes than other salmonids. Self-sustaining wild populations are found in small, cold, clean headwater streams shaded by large trees and mountain laurel, but stocked, hatchery-raised brookies can be found in larger streams. In many productive streams of Appalachia native brook trout populations have been displaced by introduced brown and rainbow trout as well as habitat loss/degradation and warming climate, and now they tend to be most successful in very cold, more acidic, and less productive streams at high elevations. However, they are resilient fish and in PA brook trout are found in the Ohio, Susquehanna, Genesee, Potomac and Delaware River watersheds.

Life history: When ready to spawn in the fall, adult females ranging from 2-5 years old will dig a "redd" (a shallow nest depression) in the streambed gravel where the eggs are then fertilized by competitive males in an area with excellent oxygen exchange. The female then covers the eggs with gravel and moves on to repeat the process, producing hundreds or even thousands (for larger females) of eggs in a few days. Only 1-2% of these eggs will survive to adulthood! The eggs develop over the winter, relying on their yolk sacs for nutrition, and hatch in late winter or early spring. The fry then eat plankton and small insects, and soon develop into fingerlings (2-3 inches long) with parr marks that help camouflage the young brookies as they hide among rocks. Adult brook trout vary widely in size depending on food availability, but wild adult brookies range from 5-18 inches long.

Concerns: In addition to displacement by brown and rainbow trout as well as habitat disturbance, one issue that has recently impacted brook trout in PA is gill lice. First reported by PA anglers beginning in 2016, gill lice are parasites that live on species of the char family (they are "host-specific"), and locally this means that they parasitize brook trout. While they do not necessarily kill the fish, gill lice live on the fishes' gills and make it more difficult for them to obtain oxygen and survive warmer temperatures thus decreasing their overall health. In response, the Pennsylvania Fish and Boat Commission has implemented statewide management strategies to protect wild brook trout from the spread of gill lice including a reduction in brook trout stocking and replacement by rainbow trout in the PA Trout in the Classroom program.



Gill lice
(Photo by Rebecca Fagley)

"Once there were brook trout in the streams in the mountains. You could see them standing in the amber current where the white edges of their fins wimpled softly in the flow. They smelled of moss in your hand...On their backs were vermiculate patterns that were maps of the world in its becoming...In the deep glens where they lived all things were older than man and they hummed of mystery." Cormac McCarthy, "The Road"

Sources:

1. Pennsylvania Trout in the Classroom. *All About Trout*. <https://www.patrouthintheclassroom.org/all-about-trout.html>.
2. Turner, Andrew M. *Fishes of the Allegheny*. Clarion University: Department of Biology.
3. Durrant, Spencer. (2021, February 8). *What's the Difference Between Trout and Char?* <https://spencerdurrant.com/2021/02/08/whats-the-difference-between-trout-and-char/>.
4. Steiner, Linda. (2000). *Pennsylvania Fishes*. Pennsylvania Fish and Boat Commission: Bureau of Boating and Outreach.
5. Good Natured. (2018, August 24). *Wild About Native Trout*. Pennsylvania Department of Conservation and Natural Resources.

SEEKING RAIN GARDEN VOLUNTEERS

by Hannah Bequeath, Education/Outreach Coordinator



VOLUNTEERS NEEDED

At the CCD Office
249 S. 2nd Ave. Clarion, PA

The Clarion Conservation District is looking for volunteers to help maintain our public rain gardens.

JOIN US!

Contact Hannah Bequeath
hbequeathccd@gmail.com
814-393-6147



THANK YOU!

Special thanks to Janet Martz, Rebecca Wise, and Leah Wolfe for sprucing up our plant species labels made from thrifted wooden cooking utensils (pictured below!)



UPCOMING EVENTS

****To register for any of the following free events, please use the contact info below.****

June

- **28th- Who Lives in Our Watershed?-** Join CCD at the Clarion Free Library, Clarion, PA to learn more about watersheds and local creatures that depend on clean water! Time varies depending on age of child. Register at <https://clarionfreelibrary.org/summer-reading-program/>.

July

- **20th- Community Volunteer Opportunity to Celebrate National Pennsylvania Day** - The County is seeking volunteers to renew, refresh, and repair the Penn State Extension Demonstration Garden area at the Clarion County Park, Shippenville, PA. Register at https://america250pa.org/PPE:_PA_Day and contact Shelly Parkes (sparkes@co.clarion.pa.us) if interested.
- **29th- Invasive Species Scavenger Hunt-** During the month of August, challenge yourself to identify, search for, and report your findings of five invasive species as part of a special, statewide, citizen science event. This event is hosted by the Western PA Conservancy. Register by July 29th at link below. https://us02web.zoom.us/webinar/register/WN_K5sXUhdmSEaJKh3JugT42A#/registration

August

- **1st- Natural Pigments Art Exhibition** - see flyer to the right for more info. Register by July 22nd.

September

- **12th- Let's All Go Fishing! -Classroom Session** - stay tuned!
- **14th- Let's All Go Fishing - Field Day** - stay tuned!
- **21st Clarion River Clean-up** - Hosted by the Friends of Cook Forest. Stay tuned!
- **28th- Allegheny River Clean-up** - stay tuned!

For more information on our upcoming events please view our Facebook or Instagram page, our website, or contact us at hbequeathccd@gmail.com

or 814-393-6147.

@conserveclarion

www.clarionconservation.com



Reconnect with the natural world through art!

Artists are invited to enter a piece whose color is entirely added by using pigments created from local sources and made in the spirit of environmental awareness.

Artists will have the option to sell their work with a commission of 30%. Space is limited, if your piece is larger than 24x24 please message first.

NEED PIGMENT?:

CCAC is happy to provide pigment made from iron oxide and the ash from local invasive species. Contact clarioncac@gmail.com.

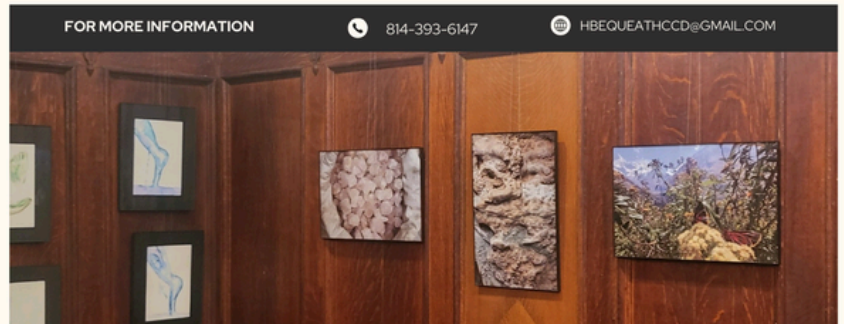
OPEN TO THE PUBLIC STARTING ON:

August, 1st 2024

At Michelle's Cafe, Clarion, PA

NO ENTRY FEE, BUT MUST REGISTER BY JULY 22ND TO ENTER.

Must be ages 15+ to enter. Register at: <https://forms.gle/hWitCr4ErkL6LNkf7>



August is National Water Quality Month!

Water is essential to all life on Earth. Necessary for the survival of all living species, water plays a significant role in human life. National Water Quality Month reminds us to take a moment to consider the importance of water resources not just to humans, but for all life.

6 Things you can do at home to protect your water

- Organize a stream clean up - Plant trees to prevent erosion
- Use rain barrels to collect rain water
- Pick up after your pet - Consider eco-friendly home water practices
- Learn how to properly dispose of unwanted or expired medication, paint, chemicals, oil, antifreeze

Do you know someone that is interested in receiving the Clarion Conservation District newsletters?

To subscribe or unsubscribe, please contact us at hbequeathccd@gmail.com or call 814-393-6147.