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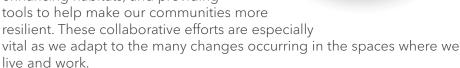






Celebrating National Estuaries Week

le have had a very busy summer at PDE, filled with important fieldwork and meaningful opportunities to engage with the public across the Delaware Estuary Program's focus area in New Jersey, Pennsylvania, and Delaware. By working together, we are improving water quality, enhancing habitats, and providing



From September 20-27, we will celebrate National Estuaries Week. It's hard to believe that 38 years have passed since the National Estuary Program (NEP) was created under section 320 of the Clean Water Act to take a broad and innovative approach to addressing threats facing our nation's estuaries. As one of the 28 NEPs, we remain committed to implementing our Comprehensive Conservation & Management Plan to protect and restore water and living resources. While we've made significant progress over the years, there are many new challenges ahead, from recurring extreme weather events to sea-level rise and other threats.

Our continued success depends on the strong partnerships we've built and the involvement of people like you – people who care deeply about the health of our environment and value our estuary's many wonders.

I hope you'll join us in celebrating our estuary on Saturday, September 27 at Penn's Landing in Philadelphia and Wiggens Park in Camden. The event will feature free fun for people of all ages and offer a chance to meet the people leading impactful work for clean waters, healthy habitats, and strong communities.

With gratitude,

Kathy Klein

KATHY KLEIN, Executive Director, Partnership for the Delaware Estuary



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ON THE COVER

Schuylkill River Sojourn Scholar, Brian Zalasky (center in red vest and orange kayak), joins fellow paddlers during the annual event, which took place from June 14-20. Read more about the Sojourn and Zalasky's experience on Page 6. Photo by Kara Foran.

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GREEN JOBS:

Students Learn What it Means to be Professionally Green

s bucketfuls of oyster shells clattered onto a wooden table, local teens sorted them into PVC pipes wrapped in mesh bags. Once the pipes were filled, they tied off the mesh to create individual bags of shell, which were then stacked into a neat pile. Nearby, other group members worked in the July heat, shoveling more shells from a massive pile to keep the process moving, sweat dripping down their necks and the tips of their noses.

work opportunities in the environmental sector. Participants experience hands-on work and engage in classroom environmental education that introduces them to environmental issues and careers. The program is coordinated by the University of Delaware Water Resources Center and led by the City of Wilmington's Department of Parks and Recreation. Participants range in age from 14 to 18 and are chosen though an application and interview

process with the City of Wilmington's Youth Career Development Internship Program and Green Jobs Program.

During their six-week program, the teens visit a variety of different environmentally oriented organizations, including PDE, to gain professional development skills and insights involving careers in the environmental sector.

"You can learn more about stuff you didn't know, such as how to produce water, and other helpful things." said Jamaal Jackson

During their visit to PDE, the Green Jobs

participants created 237 bags of recycled oyster shells, weighing over 3,000 pounds or roughly the weight of a mid-sized sedan. Later in the day, the group jumped inot a spirited debate while playing The Watershed Game, which challenged the group to work in teams while they came up with solutions to issues that often arise in the real world from street flooding to agricultural drought. For more information about the Green Jobs program, visit https://bit.ly/GreenJobsUD.



Local students and an advisor from the City of Wilmington's Green Jobs program show off some of their handiwork after creating more than 200 bags of recycled oyster shells. PDE was one of many stops that teach the students about various environmentally focused organizations.

Bagging shells is tough work, but it's all part of learning about PDE's mission for clean water. The oyster shells, recycled from local restaurants, will eventually be returned to nature. The bags that the teens created will reinforce shorelines and provide habitat for oysters and other wildlife.

These teens were part of the City of Wilmington's Green Jobs program, a six-week summer employment program for city youth to explore

BLING, BLING!

PDE's Scientists Add Sparkle to Freshwater Mussel Tagging

By Sally Ehlers, Science and Engagement Specialist

hat's the saying, give 'em the old razzle dazzle? PDE is doing just that—adding some sparkle to its work with freshwater mussels and an element of fun to volunteer and educational events.

A volunteer shows off their handiwork during an event in July at Talley Day Park in Wilmington. In two hours, 10 volunteers tagged nearly 700 hatchery – raised freshwater mussels.

This summer, PDE engaged staff, students, and volunteers in the unique activity of tagging freshwater mussels with colorful

charms. In July, PDE hosted a volunteer event at Talley Day Park in Wilmington. In just two hours, 10 enthusiastic volunteers helped tag nearly 700 hatchery – raised freshwater mussels.

These volunteers ranged from a local family seeking out summer fun to a dedicated participant who took the morning off work just to attend the event. A few weeks earlier, PDE Freshwater Mussel Technical Manager Jamie Bucholz, Ph.D., led a tagging demonstration for the Independence Seaport Museum's Teen Ambassador Program. As the teen ambassadors sat in a circle on the docks outside the museum, they tagged about 100 mussels. For many, it was their first experience handling live mussels.

In June, PDE staff kicked off the tagging process at ponds located on the grounds of Winterthur Museum, Garden, and Library, where PDE keeps mussels. Before each tagging event, Bucholz led a brief lesson on mussel biology, their fascinating life cycle, and the tagging

process, including how to properly hold them, where to put the tag, and other important do's and dont's.

Using a drop of industrial grade glue, tiny, colorful tags were added to hundreds of mussels in hours. The application of the glue does not harm the shell or the mussel, and though these mussels might look all dolled up, the glittery decor serves an important purpose. The glued-on charms are a tagging method that aids PDE scientists in distinguishing hatchery-raised mussels from wild populations when they go back to rivers, streams, and ponds to monitor the animals' growth and health.

There are different types of tags used depending on the research goal. Hallprint shellfish tags carry unique numbers that allow scientists to identify and track individual mussels over time, making them ideal for studies focused on growth. Passive Integrated Transponder (PIT) tags offer even more detailed tracking through electronic scanning. However, many of PDE's projects focus on monitoring groups of mussels rather than individuals. For these cohort-based studies, smaller, budget-friendly tags, like sequins or nail art, are lightweight, easy to apply, and work just fine.

continued on page 5



Volunteers adorn the shells of some freshwater mussels with tiny, new tags. These tags are meant to stand out, helping PDE scientists distinguish hatchery-raised mussels from wild populations as they monitor their health and growth.

The two species tagged at the Talley Day Park event were Yellow Lampmussel (Lampsilis cariosa) and Alewife Floater (Utterbackiana implicata). These hatchery - raised mussels will eventually be released into rivers where their populations have declined. supporting efforts to improve water quality, restore habitat. and reintroduce native species.

Freshwater mussels play an important role in river ecosystems by filtering water and stabilizing sediment, but they are also one

of North America's most imperiled groups of organisms. These animals face threats like pollution, habitat disruption, invasive species, and the decline of host fish that play a part in their propagation. Volunteer events, like the one at Talley Day Park, provide meaningful ways for the public to get involved in conservation.

All work undertaken is conducted under the appropriate permits, with tagging led by trained PDE scientists following established protocols to minimize handling time and stress to the animals. Funding to support this project has been received from the National Fish and Wildlife



PDE Freshwater Mussel Technical Manager Jamie Bucholz, Ph.D., teaches students in the Independence Seaport Museum's Teen Ambassador Program how to properly tag mussels with sequins and glue.

Foundation and the U.S. Fish and Wildlife Service through the Delaware Watershed Conservation Fund grant program, and from the Constellation Energy Foundation. ▶

COMMON QUESTIONS AND ANSWERS

Q: Does PDE tag live mussels?

A: Yes, we tag live mussels.

Q. Why are you placing tags on the mussels?

A: Scientists tag mussels to identify which ones were bred in hatcheries versus those that are wild. This helps track them after they've been released into rivers, ponds, and other bodies of water. This is an important step in the freshwater mussel propagation and monitoring process.

Q: Does this tagging process hurt the mussels?

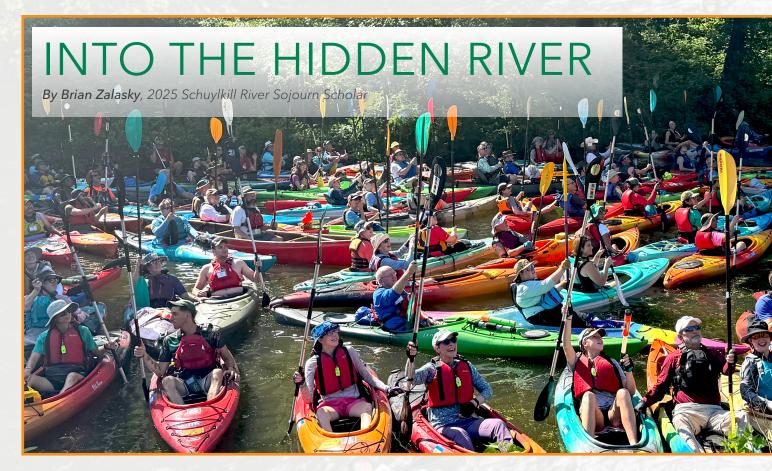
A: No. Neither the tags nor the glue hurts the mussels. Mussel shells are hard, non-porous calcium carbonate. Trained PDE scientists supervise all tagging events and follow established protocols to minimize handling time and stress to the animals. The mussels were put back in water as quickly as possible after tagging.

Q: Do the tags come off in the water?

A: We use industrial grade glue, which is meant to withstand water, so the tags don't come off.

Q: Do the decorations/tags interfere with the mussels' ability to filter water or burrow into streambeds?

A: No. The tags are incredibly small and carefully placed to avoid interfering with the mussels' natural behaviors such as burrowing and filtering.



Schuylkill River Sojourners hold up their paddles during the six-day June kayaking journey on the Schuylkill River from Schuylkill Haven, Pennsylvania to Philadelphia. This photo and background photo courtesy of Schuylkill River Greenways NHA.

o often as an English teacher, I try to remind my students to empathize with the worldviews and value systems of people we read about in class, such as the transformative power of nature, the value of nature over civilization, and experiences over money. To demonstrate these values, I put myself in a situation I've never been in before. I climbed into a kayak, paddled down the Schuylkill River, and connected with strangers. Surrounded by nature, I experienced the power of human compassion, empathy, and community – not just from observing or practicing these things, but in receiving them too.

From June 14 –20, I joined the 27th annual Schuylkill River sojourn as the Schuylkill Action Network's (SAN) first Sojourn Scholar. This used to be a title known as the Sojourn Steward before SAN changed the program and opened it to teachers.

So often ridiculed for being a polluted mess, the Schuylkill's environment is one of natural beauty.

Under the seemingly protective arms of oak, catalpa, knotweed, and mountain laurel is a rich ecosystem of herons, eagles, and turtles that obscures the river from much of the rural, suburban, and urban landscape. It's no wonder the Pennsylvania Dutch gave the Schuylkill a name that means "hidden river." On rainy days, myself and other paddlers learned first-hand why the river's Lenape name is Ganshowehanne, or "roaring stream." The Chutes, a low-head dam built into the base of a railroad bridge just southeast of Auburn, did a particular number on our group of 120 paddlers, with about a third of us "going for a swim," (yours truly definitely ate it).

My fellow paddlers were a community that quickly welcomed me along with 23 other first-time full-week Sojourners. It's a community that doesn't ask "What are you doing here?" but listens with openness when you're ready to share. That spirit of genuine community in action extended throughout the trip. At every portage, folks lent their energy, their gear,

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and their understanding of the waterway. First-time kayakers were welcomed by the expertise of seasoned Sojourners. Quickly, this

Brian Zalasky, the 2025 Schuylkill Sojourn Scholar paddles along the Schuylkill River. For Zalasky, the trip was an exercise in the transformative power of nature and the ability to empathize with others. Photo by Kara Foran.

first-timer was relaxed in their kayak, back slightly arched, eyes staring up at the kaleidoscopic canopy of leaves as the peeking sunlight refracted down through branches and up off the river, thinking, "This is so cool. I've never done anything like this before." For those invested in the Schuylkill River Greenways, I think seeing the river through a first-timer's eyes is one thing that brings them back time and time again.

The Sojourn community is also one that honors the many benefactors, volunteers, and individuals who make it so special year after year. Chief amongst these people was Dan Daley, the kilted tender of Lock 60 in Phoenixville, a stop on the Sojourn, who welcomed paddlers from its inception.

Daley, who passed away earlier this year, would orate the history of the Lock with Sojourners as they waited in their kayaks below for it to open. The reverence with which folks

> spoke about Daley was undeniable. Several times I heard people share stories with his wife, who carried on the tradition of welcoming Sojourners this year. The community clearly knew Daley, what made him tick. and how to best share his memory in a way that gave me a feeling of remorse for having missed out on his company.

This year's Sojourn theme was Canals and Campfires. In retrospect, the theme speaks to the lure of the Sojourn: It's a connective quality, akin to that of canals and locks, linking familiar and disparate people alike, near and far, through stories shared in a circle with or without a campfire at its center. What is consistently at



Man overboard! Zalasky took an unexpected dip after his kayak overturned. One of the many reasons why wearing safety vests and other personal flotation devices is always a smart choice on the water. Photo by Kara Foran.

the center of these circles – which are always ready to be opened further – is a group of Sojourners who are empaths, wanting the share their love of being in the "hidden river," the community made in the watershed along its banks, and the happiness that flows continuously year after year.

SCIENCE IS COOL AT COOL SPRING PARK

By John Harrod, PDE Engagement Director

here's more to a public park than meets the eye. On the surface it offers plenty of lawn for kids to run, jump, and turn cartwheels. There are swing sets, jungle gyms, benches, trees, flowers, and birds chirping all around. But look closer – much closer – and you'll find that outdoor parks are wild and rich with opportunities to learn about the natural world. In the grass, there are crawly bugs, layers of soil, and pathways for stormwater when it rains.

PDE Coastal Resiliency Manager Jana Savini uses an EnviroScape® model to show students from William C. Lewis Elementary how stormwater travels and flows through the environment.

Cool Spring Park in Wilmington was the perfect place for teachers from nearby William C. Lewis Dual Language Elementary School to take their 4th and 5th graders to explore these pathways and learn more about nature up close.

For two days in late May, teachers took 86 students on field trips to the park to meet with staff from Partnership for the Delaware Estuary to learn about stormwater. The field trips involved two sets of activities; a nature walk and green stormwater infrastructure (GSI) tour, and a hands-on environmental lesson using a 3D EnviroScape® watershed model.

During the nature walk, students explored the park's stormwater

features in the meadow. examined tree pits along the road, and discovered the buffer along the reservoir. They discussed how these elements function and what the City of Wilmington is doing to ensure clean water for its residents. Along the way, they learned about the local ecology and how it connects to the GSI features like providing wildlife habitat for insect pollinators and birds. The students also collected water samples

from the reservoir and discussed the importance of monitoring water quality.

Day Two focused on how stormwater runoff carries pollutants from homes, farms, and factories into local waterways.



A student from William C. Lewis Dual Language Elementary tests water with classmates and PDE staff during a field trip at Cool Spring Park in Wilmington.

Using the EnviroScape model, kids got a hands-on look at how water travels and explored the impacts of pollution on ecosystems and native wildlife.

Kids learned about point – source and non-point-source pollution and effective prevention strategies, all while empowering them with information on how to protect their environment.

After the program, PDE provided magnifying glasses and telescoping butterfly nets for the teachers and students to take home to continue exploring and deepening their understanding of the natural world in their local communities.

Funding to support this project came from the City of Wilmington.

PHILADELPHIA
WATER
DEPARTMENT
CROWNS A NEW
SPOKESDOG

4/1/

here's a new clean water hero in town, and her name is Willow.

On June 8, the Philadelphia Water Department (PWD) chose a new top dog to wear its blue cape and be a spokesdog for clean sidewalks and clean water throughout the city.

To earn her title. Willow and her owners, Elizabeth Manner and Jeff Poku-Adjei, participated with other dogs and dog owners in a special competition held at The Boozy Mutt, a dog-friendly bar in Philadelphia. There were rounds of trivia and cornhole for dog owners, plus a costume contest and tricks for the dogs. Willow wore a sunhat and dog sunbathing outfit, but some dog owners went all out with rain jackets and Wonder Woman and The Flash costumes.

The concept of PWD's spokesdog is to remind Philadelphia dog owners to responsibly pick up and dispose of their dog's waste. Dog poop on the ground isn't just an unpleasant obstacle; it's a pollutant that harms our waterways. When left behind, rain can wash that waste into storm drains, which eventually lead to our local creeks and streams. That mess can worsen water quality and negatively impact aquatic plants and animals.

Armed with the power of the cape, Willow will attend public events throughout the year with her charm and tail wags to promote responsible canine bathroom habits that prevent water

poo-lution.
For more
information about
how to properly
dispose of dog waste, visit
delawareestuary.org/manage-

dog-waste. ◆

Meet Willow, the newly caped Philadelphia Water Department Spokesdog. Her mission is to keep Philly waterways clean by reminding dog owners to properly pick up and dispose of dog waste.

DELAWARE GOVERNOR MICHAEL N. CASTLE

e honor the life and legacy of former U.S. Representative and Delaware Governor Michael N. Castle.

As governor from 1985 to 1992, Castle played a pivotal role in nominating the tidal Delaware River and Bay for the U.S. Environmental Protection Agency's National Estuary Program. Eight years later, that nomination led to the establishment of the Partnership for the Delaware Estuary.

During his 18 years in the U.S. House of Representatives, Castle continued to advocate for estuaries and clean water. He authored and introduced the Delaware River Basin Conservation Act, a landmark piece of legislation that remains a cornerstone of regional conservation efforts.

"Governor and Congressman Castle was a true visionary who cared about the Delaware River

Watershed and the people who live in our region," said PDE Executive Director Kathy Klein. "Thanks to Mike's leadership, much progress has been made to improve the health of the Delaware River and Bay's water quality, which has led to the transformation of waterfront communities across the tri-state region."



His legacy lives on in many ways, including the Michael N. Castle Trail at the C&D Canal, which connects two of America's largest estuaries: the Chesapeake and the Delaware.

Thank you, Mike, for being a true estuary champion. Your impact will be felt for generations to come. ◆

TIDINGS

HAPPY ONE-YEAR ANNIVERSARY, TKUWEYO!

ast year, PDE cut the ribbon on a dream come true.



After many years of wanting and needing a boat for field work, PDE and friends officially launched RV Tkuweyo, named after the Lenape word for "wave." The vessel is a 20-foot-long G3 Gator Tough jon boat with a Yamaha V MAX SHO® 115 outboard engine. Since the launch, Tkuweyo has been essential to PDE's work, helping the science team and their equipment reach tidal wetlands and remote areas of the Estuary that would otherwise be difficult

to access. She may not be as spotless as she was a year ago, but we don't mind a little mud!

The boat, motor, trailer, and amenities come to PDE through a trio of corporate, foundation, and government support. PDE is eternally grateful to Yamaha Rightwaters, Aqua, an Essential Utilities Company, and the Environmental Protection Agency under an Assistance Agreement for making the boat acquisition possible.



DELAWARE RIVER FESTIVAL

Saturday, September 27, 10 a.m. to 4 p.m. at Penn's Landing, Philadelphia, and Wiggins Park, Camden

Join us at the 2025 Delaware River Festival at the Philadelphia and Camden waterfronts! This FREE, family-friendly event is packed with exciting activities for all ages, including live animals and environmental exhibits, face painting, crafts, swan boat rides at Paddle Penn's Landing, and FREE all-day access to the RiverLink Ferry across the river. Plus, you can watch the Philadelphia Cup Regatta, get some great grub from local food trucks, judge some art, and more! You can't miss with an event like this. Check it out! Visit delawareriverfest.org.



OYSTER SHELL RECYCLING VOLUNTEER EVENT

Saturday, October 4, 9 a.m. to noon, Philadelphia, and Saturday, November 1, 1 to 3 p.m. in Wilmington

Looking for some volunteer hours? Help PDE bag recycled oyster shells for future environmental projects. All you need to bring is yourself and a reusable water bottle, and we'll provide the shells, good vibes, and music. Space is limited, so sign up today by visiting bit.ly/m/PDE-Shell-Bagging.



TICKETS AVAILABLE!

2025 EXPERIENCE THE ESTUARY CELEBRATION

Thursday, October 9, 5 to 8:30 p.m., Vie by Cescaphe, Philadelphia

Tickets sales will be closing soon for the 2025 Experience the Estuary Celebration. Don't miss PDE's biggest night of the year, featuring cocktail hour, open bar, dinner, auction, and the raw oyster bar featuring Delaware Bay oysters. Secure a spot before it's too late. Visit DelawareEstuary.org/Fundraiser.



SAN ANNUAL MEETING

Friday, November 7, Albright College, Reading, Pennsylvania

Join the Schuylkill Action Network (SAN) for an annual celebration of partnership in the Schuylkill River Watershed. This is a meaningful opportunity to network with current SAN partners and make new friends who are dedicated to preserving and enhancing the watershed. Registration is required. More details are coming, so stay tuned by visiting the SAN website at schuylkillwaters.org. Interested in being a sponsor for this event? Contact ahartman@delawareestuary.org.



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THE PARTNERSHIP FOR THE DELAWARE ESTUARY

CONNECTING PEOPLE, SCIENCE, AND NATURE FOR A HEALTHY DELAWARE RIVER AND BAY

The Partnership for the Delaware Estuary, host of the Delaware Estuary Program, leads collaborative, science-based efforts to improve the Delaware River and Bay, which covers portions of Delaware, New Jersey, and Pennsylvania. To find out how you can become one of our partners, call PDE at (800) 445-4935 or visit our website at www.DelawareEstuary.org.

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