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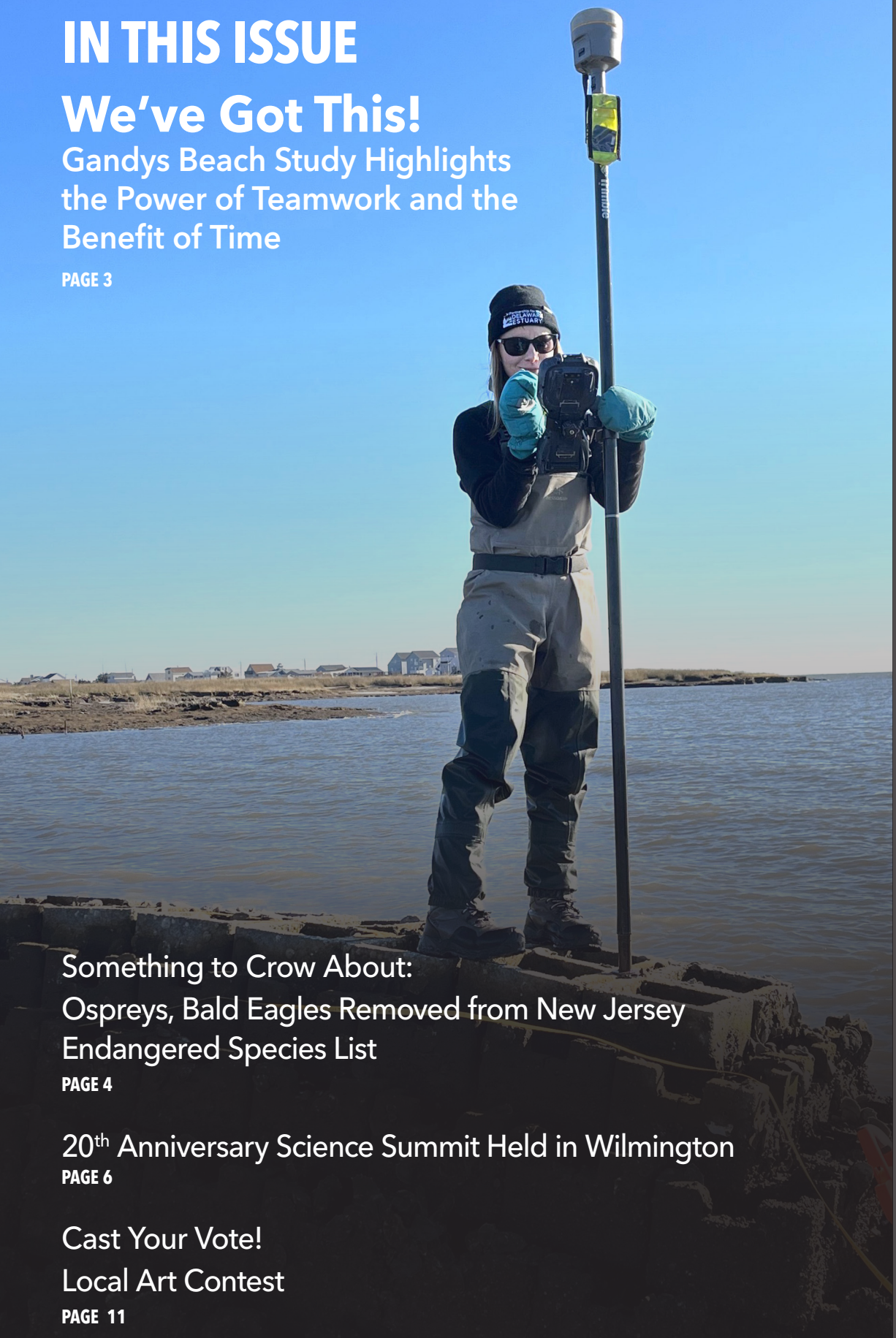

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PARTNERSHIP FOR THE DELAWARE ESTUARY
CONNECTING PEOPLE, SCIENCE, AND NATURE FOR A HEALTHY DELAWARE RIVER AND BAY

VOLUME 35
NUMBER 1 | 2025

Dear Friends,

Since 1996, the Partnership for the Delaware Estuary (PDE) has been dedicated to improving water quality in our region. Today, in spite of the uncertainties that are impacting both PDE and our partners, we are committed to continuing our efforts in service to the health of the estuary, its wildlife, and its residents. It is my firm belief that the work we do with the support of all our partners across the Estuary and Bay increases in importance with each passing day.

As I edited this issue of *Estuary News*, I had the opportunity to reflect on all of the fantastic work that PDE's staff and partners are doing across the region. A great example of this was our recent Delaware Estuary Science & Environmental Summit. This conference brought together around 300 people representing academia, the private sector, non-profits, community-based organizations, and local, state, and federal agencies.

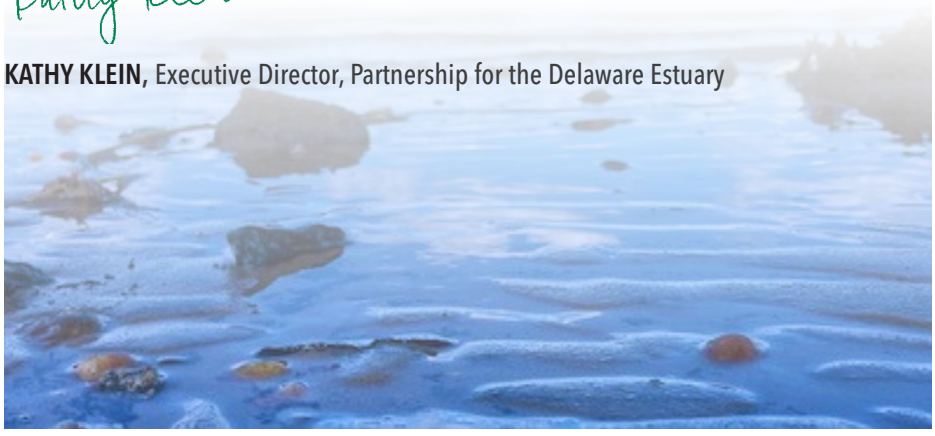
We are fortunate to have so many people who care for and are dedicated to improving our Estuary, and we're always looking for new ways to adapt to the challenges that we face.Having the opportunity to share lessons learned moves the needle to improve the health of the Estuary for all living beings.

At PDE we are committed to continuing to work with the same level of accountability to our funders and passion for our mission that we have shown for the past 29 years. We look forward to working with you to support clean waters, healthy habitats, and strong communities in the Delaware Estuary.

Best wishes,

Kathy Klein

KATHY KLEIN, Executive Director, Partnership for the Delaware Estuary



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Meetings conducted by the Delaware Estuary Program's implementation and advisory committees occur on a regular basis and are open to the public. For meeting dates and times, please contact the individuals listed below:

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ON THE COVER

Ella Rothermel, PDE's Urban Resilience Assistant Manager, conducts a real-time kinematic positioning (RTK) survey on a special structure at Gandys Beach, New Jersey. See the story on Page 3. Photo by Jenny Shinn.

FOLLOW US ON:

TEAMWORK MAKES THE RESEARCH DREAM WORK

Recent Study Highlights the Benefits of Having Many Researchers on Board a Nature-Based Resilience Project

By Ella Rothermel, PDE's Urban Resilience Assistant Manager

When it comes to learning about living shorelines, the more time and researchers the better.

Partnership for the Delaware Estuary (PDE) and a team of collaborators from Rutgers University's Haskin Shellfish Research Laboratory, Stevens Institute of Technology, The Nature Conservancy (TNC), New Jersey Department of Environmental Protection, and the U.S. Fish and Wildlife Service (USFWS) Delaware Bay Coastal Program recently published a scientific study that highlights the benefits of having many years (and many scientists) evaluate nature-based resilience projects.

The study was recently featured in a special issue of *Estuaries and Coasts*, the national scientific journal of the Coastal and Estuarine Research Federation. The article highlights several important lessons that will guide others who hope to enhance and protect shorelines. These insights would have never been possible without a dedicated multi-disciplinary team and seven years of monitoring.

"Through interdisciplinary collaboration and long-term monitoring, we gained invaluable lessons for advancing living shoreline work, and formed lasting partnerships that have been the foundation for more successful projects and efforts," said Danielle McCulloch, coastal program biologist for USFWS Delaware Bay Coastal Program.

A group from multiple organizations work on the living shoreline project at Gandys Beach, New Jersey

The study took place on 8.5 acres within TNC's Gandys Beach Preserve in Cumberland County, New Jersey. The devastating impacts of Hurricane Sandy led to a substantial loss of Delaware Bay beaches, a critical habitat for many species. Large stretches like Gandys Beach not only provide essential nesting and feeding grounds for species like horseshoe crabs and red knots, but they also buffer communities from coastal storms.

With hopes of maintaining critical habitat, the National Fish and Wildlife Foundation awarded federal funding for project partners to install and monitor a living shoreline at the preserve. Between 2015 and 2019, the project team and volunteers installed a series of breakwater structures built out of Oyster Castles™ and shell bags to protect the shoreline from waves and provide habitat for oysters and ribbed mussels. Similar to other nature-based resilience solutions, the goal of the Gandys Beach project was to reduce erosion, protect and enhance vegetation, and boost ecosystem services to benefit wildlife and people. Two successive federal grant programs enabled the diverse team of researchers to construct and monitor the success of the project for a total of seven years after construction – a longer time frame than the typical monitoring period of one to three years.

The key research question was whether the living shoreline structures did what they were supposed to do: protect Gandys Beach while enhancing habitat. Results were mixed. While erosion was not controlled and vegetation cover decreased

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SPECIES SPECIFIC

NEW JERSEY REMOVES BALD EAGLES AND OSPREY FROM ITS THREATENED AND ENDANGERED SPECIES LISTS

Bald eagle in Ocean County, courtesy of Rich Nicol

January was a month to celebrate in New Jersey. That was when the state removed osprey and bald eagles from its threatened and endangered species lists, reflecting more than 40 years of work to restore these iconic birds to New Jersey's landscape.

According to a press release from the New Jersey Department of Environmental Protection (NJDEP), the status of bald eagles changed from endangered to special concern, and the osprey from threatened to stable. These status upgrades are based on NJDEP's determinations that the populations of these birds have recovered to the point that their survival in the state is no longer in jeopardy.

"This action is indeed a significant milestone in the history of endangered species conservation and recovery in New Jersey and is the result of the passion and commitment of many people over the past 40-plus years to restore wildlife that were on the brink of extirpation in

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Kathy Clark, chief of the New Jersey Department of Environmental Protection's Endangered and Nongame Species Program, bands a bald eagle. Bald eagles and ospreys recently came off of the state's threatened and endangered species lists. Photo courtesy of NJDEP.

New Jersey," said Environmental Protection Commissioner Shawn M. LaTourette. "Even with this tremendous success, we will remain vigilant in our monitoring and protection of these species to ensure they continue to thrive in New Jersey."

The NJDEP has worked closely with the Conserve Wildlife Foundation of New Jersey for many years through the state's Bald Eagle Project to protect bald eagles and their habitat, including coordinating a network of nest observers who monitor identified nest sites for eagle activity and reproduction. The volunteers also play a big role in educating the public about the need to protect nests from disturbances.

"The removal of the bald eagle and osprey from New Jersey's endangered species list is a remarkable accomplishment, made possible by the tireless efforts of our dedicated wildlife professionals," said NJDEP Fish & Wildlife Assistant Commissioner Dave Golden." The key to this success is a commitment to science, planning, and strong lines of communication with the public and stakeholders. However, there is still work to be done, and we remain committed to the professional management and conservation of all of our wildlife species here in the Garden State."

"The success of the bald eagle and osprey in New Jersey can be attributed to so many dedicated and hard-working individuals and partners," said Endangered and Nongame Species Program Chief Kathy Clark."

These species would have been lost without years of work to understand the threats and enhance conditions to allow eagles and ospreys to thrive and recover. This was a long-term commitment not only by the state, but also conservationists from non-profit organizations and our incredibly dedicated volunteers. The DEP's Bald Eagle Project has benefitted from a volunteer nest watching program that now numbers more than 150 people.

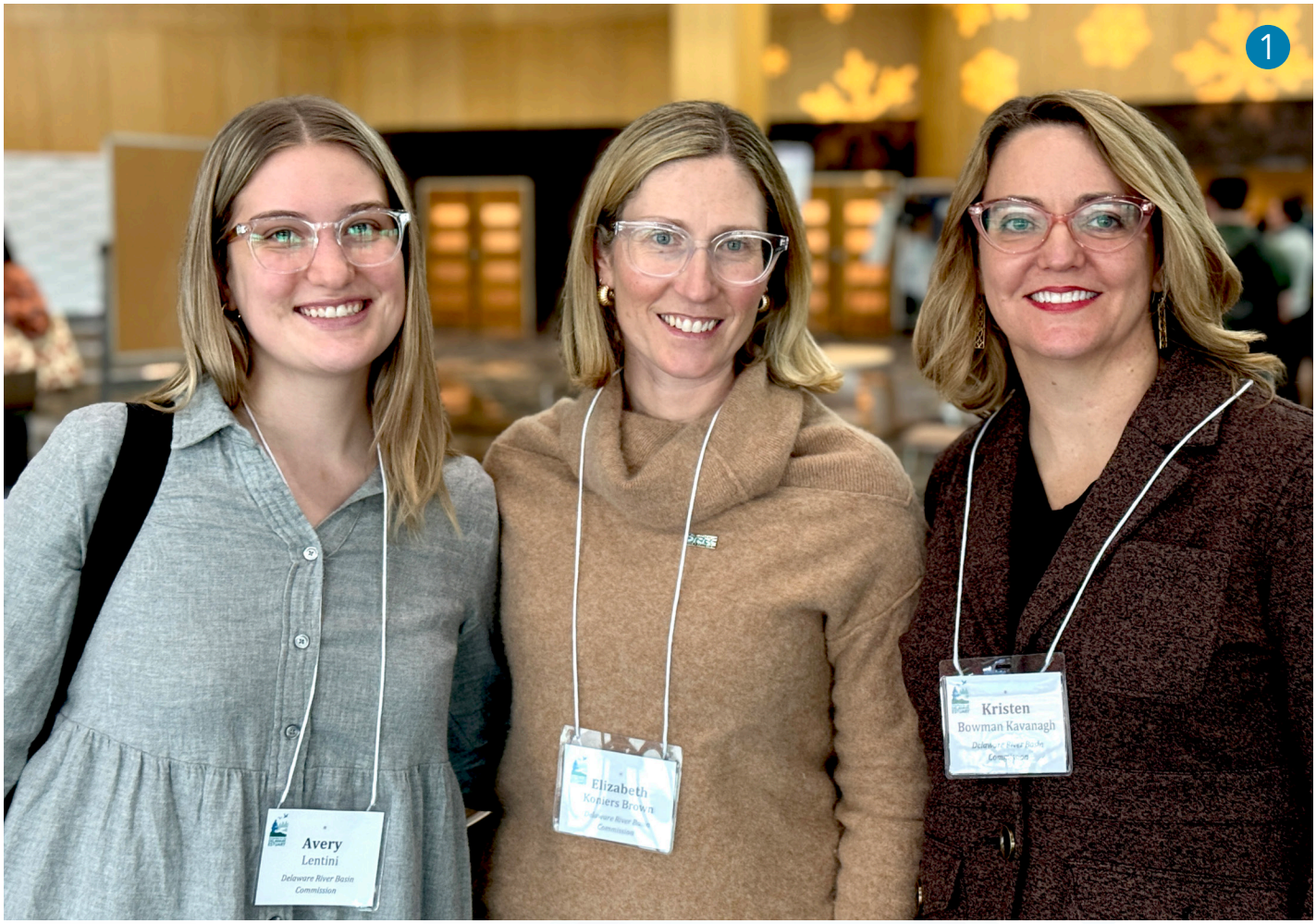
"We do have more work to do and continue to face challenges, as evidenced by the addition of 30 species to the state's endangered species list," Clark added. "But with so many dedicated people and strong legislation in place, I am confident we will continue to protect our remarkable diversity of wildlife."

HEALTHY HABITATS: H3.5

For more details and to read the full press release, visit, visit https://bit.ly/NJEaglesandOsprey

20TH ANNIVERSARY SUMMIT

2025 Delaware Estuary Science & Environmental Summit Held in Wilmington



Twenty years ago, the first Delaware Estuary Science & Environmental Summit started a conversation, that continues to this day about the key issues affecting the Delaware Estuary. Since then, science has been the foundation of Partnership for the Delaware Estuary's (PDE) mission and core values.

This year, for its 20th anniversary, the Summit returned to Delaware after PDE held it for years in New Jersey. "We look forward to seeing and learning from partners from across the region as we celebrate our shared commitment to improving the environmental health of our waterways, habitats, and communities," said PDE Executive Director Kathy Klein in her opening Summit remarks.

The first day's keynote speaker was Tony MacDonald, director of the Monmouth University Urban Coast Institute (UCI) in West Long Branch, New Jersey. His speech was *Change Climate and Environments – A Policy Perspective and Actions We Can Take*.

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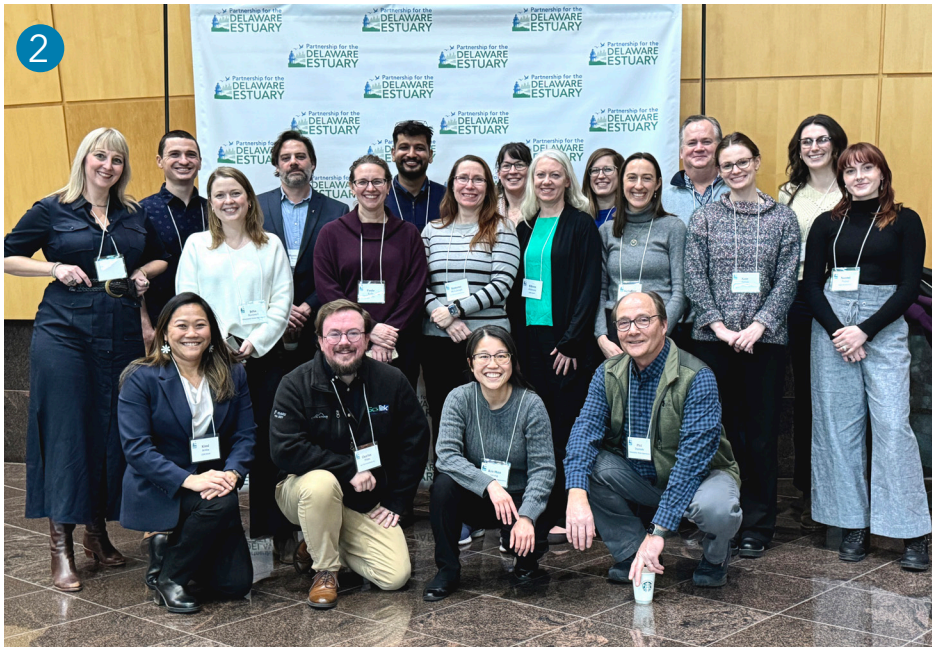

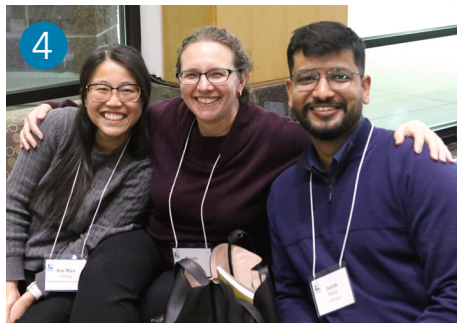

1. Avery Lentini, Elizabeth Koniers Brown, and Kristen Bowman Kavanagh of the Delaware River Basin Commission share a moment at the Delaware Estuary Science and Environmental Summit. **2.** The Summit was a great opportunity for friends and colleagues to come together and talk in-person about various topics related to the environment, policy, and action in the Delaware River Watershed. **3.** Donald Farrell, of the community group Northeast Rising, participates in a group discussion during one of the Summit's presentations. **4.** Science Summit attendees relax and enjoy a break between talks at the Chase Center on the Riverfront.

"As we do the work that we do, we want to make sure that the total outcomes are greater than the sum of its parts," MacDonald said. "And too often we are hamstrung, and the default is often the least common denominator rather than the highest aspirations."

The second day's keynote speaker was Rachel Hogan Carr, executive director of the Nurture Nature Center in Easton, Pennsylvania. She spoke about *Connecting Science to Communities* and described the educational and social science research approaches her team has used in the Lehigh Valley and nationally. This work is helping to advance their audiences' understanding of the complex issues and risks facing their environment and communities, including flooding and other weather and climate-related hazards.

With more than 70 presentations over the two-days, Summit speakers delved into a wide range of topics, from technical research involving diatoms in living shoreline projects and research into perfluoroalkyl substances (PFAS, or "forever chemicals") to the role of dams on local fish species, and the installation of pollinator gardens and outdoor classrooms in communities.

"For the past 20 years, dedicated scientists, practitioners, and community members have been working to sustain the Delaware Estuary and River Basin," said PDE Estuary Science Director LeeAnn Haaf, Ph.D. "For this Summit, we're celebrating how decades of science and research have successfully informed policies and led to action, lending to our collective achievements in healthy habitats, clean waters, and resilient communities."

PDE thanks the PSEG Foundation for providing a scholarship opportunity to a number of community leaders from across the Delaware River Watershed

Want to see more Summit photos? Visit https://bit.ly/ScienceSummit25

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to attend the Summit. The Summit provided these leaders with an opportunity to network and exchange ideas with other attendees and presenters, as well as learn more about environmental and sustainability topics, and discuss resources. Donald Farrell, of the community group Northeast Rising in Wilmington was a PSEG Summit Scholarship recipient. Farrell found inspiration at the meeting, summing up his experience as "empowering, educational, and enlightening."

PDE also thanks the following Benefactor and Patron sponsors for making the 2025 Summit possible:

The Energy Transfer/Sunoco Foundation, New Jersey Department of Environmental Protection, Artesian Water, Constellation Energy, Delaware Department of Natural Resources and Environmental Control, Delaware River Basin Commission, U.S. Fish and Wildlife Service, and Veolia. Additional funding support was provided by the U.S. Environmental Protection Agency.

STRONG COMMUNITIES: C2.5

ESTUARY PROGRAMS SALUTE SENATOR CARPER'S SERVICE TO THE ENVIRONMENT

PDE Executive Director Kathy Klein, left, and Delaware Center for the Inland Bays Executive Director Christophe Tulou, middle, present U.S. Sen. Thomas R. Carper, who retired this year, with a framed woodcut of the Delaware River and Inland Bays as a token of his many years of service to Delaware and for being a champion of the environment.

U.S. Sen. Thomas R. Carper is a longtime champion of the environment. In 1987, as a member of the U.S. House of Representatives, he helped pass the legislation that created the National Estuary Program. Later in 2016, while serving in the U.S. Senate, Carper created and pushed for the passage of the Delaware River Basin and Conservation Act. Throughout his political career which included terms as Delaware's treasurer and governor, Carper supported the Endangered Species Act and was involved with federal investments in local coastal community conservation and restoration efforts.

In recognition of this service and in honor of Carper's recent retirement, PDE and the Delaware Center for the Inland Bays presented Carper with a special award during a dinner at the 2025 Delaware Estuary Science and Environmental Summit, held in Wilmington.

"His engagement with these programs has been anything but token," said Christophe Tulou, executive director of the Delaware Center for the Inland Bays, a fellow National Estuary Program based in Rehoboth Beach, Delaware. "As a dedicated public servant – as a matter of fact, the most dedicated public servant you'll ever have the pleasure of meeting – and astute student of governance, he knows well the importance of partnership, of public engagement, as well as the power and importance of science."

Carper's award was a framed woodcut map of the Delaware River and Bay and Delaware's Inland Bays.

"We hope you, as a recovering treasurer, congressman, governor, and senator, will feel the gratefulness of the Delaware Bay and this watershed every time you look at this award," Tulou said.

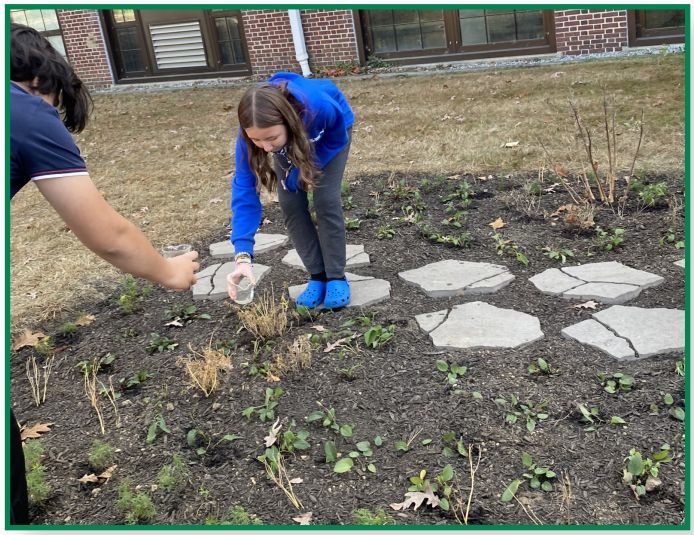
SALEM POLLINATOR GARDEN IS GOOD FOR GROWING MINDS

Pollinator gardens aren't just for showing off charming flowers with vibrant blooms. These beauties are pretty with a purpose by drawing butterflies, bees, and other important insects that pollinate crops so they can thrive. At Salem Middle School in Salem, New Jersey, pollinator gardens hold another purpose. They're teaching students how to soak in nature's beauty while developing green thumbs through the art of plant care.

Last fall, Partnership for the Delaware Estuary installed a pollinator garden at the school with help from Davis Lawns & Landscapes. The 200-square-foot plot contains a bright-blooming variety of 575 native perennial plants, including purple coneflowers, milkweed (which especially attracts Monarch butterflies), black-eyed Susans, goldenrod, asters, penstemon, bluestar, tickseed, and hibiscus. Two native redbud trees were also planted outside the cafeteria where students and staff will see their pops of color each spring while enjoying lunch.

Native plants in this pollinator garden come with added benefits. These beauties are already adapted to local climate conditions and therefore require a lot less upkeep than non-native species. Plus, their strong root systems filter water, aid groundwater recharge, and reduce stormwater runoff and flooding.

Since the garden's installation, Science Teacher Christopher Lee has worked hard to teach his 7th and 8th graders how to manage the garden by clearing loose debris, leaves, and other materials.

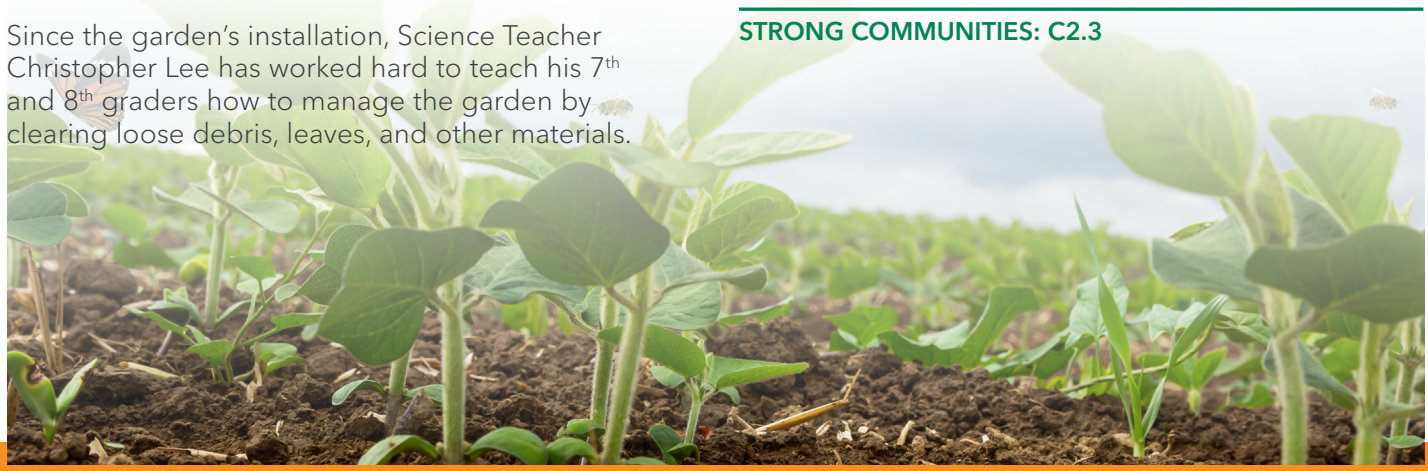


Students water young native plants in the new pollinator garden at Salem Middle School in Salem, New Jersey.

"My goal is to have the students be able to maintain the garden without me, even throughout the summer," Lee said. "They are being taught the skills necessary to raise a quality project."

PDE thanks the National Fish and Wildlife Foundation and the William Penn Foundation for their funding support of this project.

STRONG COMMUNITIES: C2.3



Teamwork continued from page 3

across the site, there were also meaningful signs of habitat improvement. PDE's analysis using the Wetland Assessment Tool for Condition and Health (WATCH) identified areas of positive impact that could inform future resilience projects. Despite overall negative trajectories in elevation and vegetation metrics, areas with shell bags were able to trap sediment and grow vegetation. These same areas boosted the number of ribbed mussels which formed dense colonies and helped stabilize the shoreline. Additionally, researchers determined that the concrete structures supported healthy local oyster and fish populations.

"While structures did not control all the physical challenges at the site, we learned the critical value of integrating site-specific trends over time with engineering design expertise," McCulloch said. "For instance, using projected sea level rise to develop appropriate crest elevation and width to meet wave attenuation objectives. Lessons learned at Gandys are being applied to other, more successful, coastal resilience projects."

Although Gandys Beach still faces challenges from future storms and sea-level rise, this intensive living shoreline study revealed which nature-based strategies might best help to protect other Delaware Bay beach habitats. Had it not been for the team effort on this project, researchers might not have been able to draw such important conclusions to help benefit future projects.

HEALTHY HABITATS: H1.3/ H3.3

To read the *Estuaries and Coasts* article, visit: https://bit.ly/GandysStudy

ESTUARY BASICS

LIONVILLE GETS NEW RAIN GARDENS

It's not unusual to see plants in the parking lot of Pickering Valley Feed and Farm Store in Lionville, Pennsylvania. Besides aquarium fish, pet food, and garden supplies, the longtime business also sells plants and flowers to liven up people's homes.

If you stop by lately, though, you can't help but notice that their landscaping has undergone a major makeover. Last November, P. J. Reilly Contracting and EarthCare Landscaping installed two rain gardens and naturalized stormwater basins as part of a Schuylkill Action Network (SAN) water improvement project.

Water-loving native plants and shrubs such as blue flag iris, inkberry holly, and red twig dogwood were installed to help filter and absorb water during rainstorms. This will improve the qualify of near by Pine Creek. These plants and shrubs will all help to slow the flow of stormwater in the parking lot.

A rain garden is a shallow, basin-shaped garden designed to capture and filter rainwater runoff from surfaces like roofs and driveways. These features slow the flow of water and filter and replenish groundwater. Native plants provide wildlife habitat and add natural beauty.

Workers from EarthCare Landscaping install blue flag irises in the parking lot of Pickering Valley Feed and Farm Store in Lionville, Pennsylvania.

Contractors installed more than 2,500 native plants for this project. Included Joe Pye weed, sedges and rushes, and swamp milkweed.

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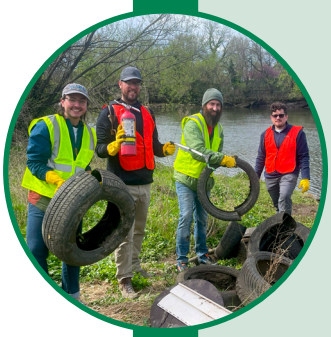
Lionville continued from page 10

PDE is grateful to Dan Daley of Edward B. Walsh & Associates for his support of this project and for connecting the SAN team with Jim Cracas, owner of Pickering Valley Feed and Farm. Jim and his team's support for sustainable practices and knowledge of landscaping will ensure the long-term success of these gardens and help protect the quality of Pine Creek, and downstream Pickering Creek for years to come.

This SAN project was made possible thanks to the National Fish and Wildlife Foundation, William Penn Foundation, Aqua, an Essential Utilities Company; and Constellation Energy via the Schuylkill Restoration Fund. In-kind support came from Uwchlan Township, Pennsylvania.

STRONG COMMUNITIES: C1.3

ESTUARY EVENTS



CHRISTINA RIVER WATERSHED CLEANUP

9 a.m. to Noon, Saturday, April 12

There's still time to register for April's Christina River Watershed Cleanup. This annual cleanup event brings volunteers like you to 14 sites in upper New Castle County, Delaware, and Landenberg, Pennsylvania. You can sign up to volunteer at any of the sites from Brandywine Creek State Park to PDE's cleanup location at Vandever Avenue near Northeast Boulevard in Wilmington. Just a few hours of picking up litter makes our neighborhoods, parks, and most importantly our waterways, a little cleaner and healthier. Register by visiting https://bit.ly/ChristinaCleanupForm.

Artwork by Natalie Orga

CAST YOUR VOTE!

DELAWARE TRASH INTO TREASURE ART CONTEST

Artwork on Exhibit at the Route 9 Library and Innovation Center, New Castle

Now through Sunday, April 13, you can vote for your favorite local artwork from the Delaware Trash Into Treasure art contest. The free exhibit is on display at the Route 9 Library and Innovation Center and features original work by 20 artists from throughout the First State. Each piece incorporates the beauty and importance of clean water and keeping litter out of our rivers and streams. The exhibit runs through April 25. Vote online at https://bit.ly/TrashIntoTreasure, or by scanning the QR code at the library exhibit.

EARTH AND ARBOR DAY CELEBRATION

11 a.m. to 2 p.m. Thursday, April 17, Cool Spring Park, Wilmington

Celebrate Earth Day and Arbor Day in Wilmington, Delaware on Thursday, April 17 at Cool Spring Park. PDE and other area partners will have fun booths, activities, games, music, dancing, plants for sale, and more. Get out, enjoy the spring weather and celebrate Mother Earth at this free event!

STRONG COMMUNITIES: C2.2 C2.4

Partnership for the DELAWARE ESTUARY

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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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