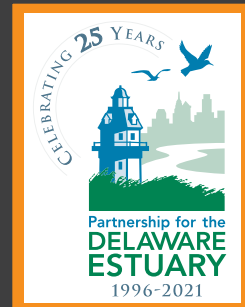


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Helping to protect and improve the  
health of the Delaware River & Bay

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**THE PARTNERSHIP FOR THE DELAWARE ESTUARY**

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

WINTER 2021

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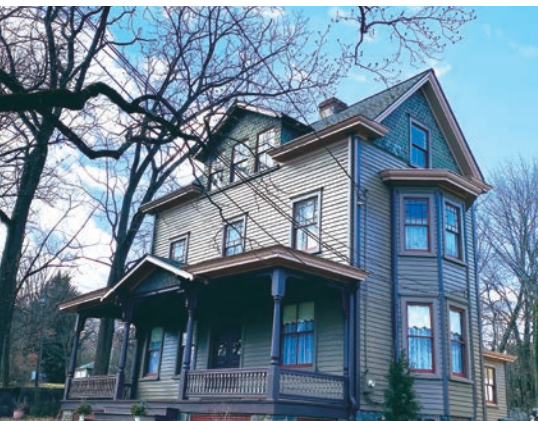
## DIRECTOR'S MESSAGE



### DEAR FRIENDS,

I hope that you and your loved ones are doing well as we continue facing the challenges related to the COVID-19 pandemic. All of us at the Partnership for the Delaware Estuary (PDE) are happy that 2020 is behind us and are hopeful that the new year will bring better times for everyone.

Speaking of the new year, it just so happens that 2021 is a very momentous year for both PDE and the Delaware Estuary Program (DELEP). It is hard to believe that PDE was established 25 years ago, and that same year the first DELEP Comprehensive Conservation Management Plan was completed, printed, and put into action. I feel fortunate to have been involved with both PDE and DELEP pretty much since the beginning and am enormously proud of all that we have accomplished.



Partnership for the Delaware Estuary's first office was in a former church parsonage at Bellevue State Park in Wilmington, Delaware.

To take us down memory lane a bit, I'm sharing a picture of PDE's first home on the grounds of Bellevue State Park in Wilmington, Delaware. We had two rooms on the second floor of this building that had previously been a church parsonage. Thinking back to those early days makes me realize just how far we have come and all the twists and turns that occurred along the way. During the first few years, when we were a staff of only a few people, our focus was primarily on education and outreach. Now, with a staff of 25, that portfolio has expanded to include scientific research, restoration, monitoring, innovation,

and so much more. The foundation of both PDE and DELEP's success was built upon perseverance, passion, and partnerships. Those pillars of support are standing strong and have served us well.

Throughout 2021, we will take some time to celebrate how far we have come over the past 25 years through stories in Estuary News, social media, and special events. We also will finalize a new strategic plan that will position us for an exciting and successful future. One aspect of our work that will always remain constant is finding new and creative ways to engage people of all ages and from diverse backgrounds to join us in on-the-ground efforts supporting cleaner waters, healthier habitats, and stronger communities across the Delaware River Watershed.

Best wishes,

KATHY KLEIN, Executive Director, Partnership for the Delaware Estuary

## COMMITTEES CONTACT LIST

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

From left, Patty Woodruff and Jen Gilmore, science technicians with Rutgers University's Haskin Shellfish Laboratory stand on a dock in Rehoboth Bay, Delaware while working on an oyster experiment. See Page 6 for more information.

### FOLLOW US ON:





# DELAWARE ESTUARY SCIENCE & ENVIRONMENTAL SUMMIT AND CLIMATE CHANGE FORUM

Partnership for the Delaware Estuary held its ninth biennial Delaware Estuary Science & Environmental Summit on March 1-3. This conference brought citizens and scientists together from around the region in a virtual format.

With more than 300 registrations, the Summit had a record number of attendees. There were more than 80 Zoom presentations on a wide range of topics from microplastics to urban waters. Keynote speakers on the first day were National Wildlife Federation President and CEO Collin O'Mara and water scholar and activist Kelsey Leonard.

The Delaware River Basin Commission and its Advisory Committee on Climate Change held their first Climate Change forum on Day 2 of the Summit. Keynote speakers were Ben Hamlington, Ph.D., of NASA's Jet Propulsion Laboratory and NBC 10 Meteorologist Glenn "Hurricane" Schwartz.

Partnership for the Delaware Estuary (PDE) owes a lot to the Summit, for it was the gateway toward becoming the science-based organization that it is today.

"The Science and Environmental Summit was created in 2005 as one of the first-ever watershed-focused meetings that we know about in the United States," said PDE Science Director Danielle Kreeger, Ph.D. "The goals were really to build linkages among people from different states in the watershed, from different sectors – non-profit, academia, federal and state agencies, and the private sector – bringing them together across those sector borders, but then, most importantly, to bring people together with different expertise areas in the environmental sciences."



◀ First Delaware Estuary Science & Environmental Summit in 2005. Executive Director, Kathy Klein, left, and Science Director, Danielle Kreeger, Ph.D.



◀ Collin O'Mara, President and CEO of the National Wildlife Federation, and water scholar and activist Kelsey Leonard were two keynote speakers at the 2021 Delaware Estuary Science and Environmental Summit.

These linkages are always what has made the Summit unique.

"And through those connections, you can start to work toward what we call ecosystem-based management or watershed-based decision making," Kreeger said.

Conversations that started at the Summit have led to prioritizations for the Delaware River Watershed and some characterizations about what makes the Delaware Estuary distinct and different from other great American coastal watersheds.

This year's Summit's virtual nature enabled PDE to lower registration fees. Despite being online, there were still opportunities for people to interact and share ideas through poster sessions, virtual breakout rooms for mentors and mentees, and a few fun activities. Presentation abstracts and more are available to view on the summit website at [www.delawareestuary.org/summit](http://www.delawareestuary.org/summit).

This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP	<b>STRONG COMMUNITIES</b>	<b>GOAL C2</b>	<b>Improve Public Awareness &amp; Stakeholder Engagement</b>
	<b>STRATEGY C2.5</b>	Publish and share outreach materials and scientific results	

# DANIELLE KREEGER

## SCIENCE, PASSION, AND THE FUTURE



PDE's Science Director Danielle Kreeger, Ph.D., has spearheaded a number of science programs that the organization still uses today.

Get Danielle Kreeger talking about science, and she'll tell you about the many projects that Partnership for the Delaware Estuary (PDE) has done and how there is so much more to do to improve water quality, coastal wetlands, and habitat for oysters and freshwater mussels. There's real passion there; her eyes widen, and there's intensity in her voice. Whenever someone speaks to her, she nods and narrows her eyes as she takes in every word, missing nothing.

"Danielle is about as focused on science as anybody I've ever met in my life," said former PDE Board Chairman Roy Denmark.

Like Denmark, many attribute Kreeger, PDE's Science Director, for making Partnership for the Delaware Estuary, the science-based organization that it is today. Originally, Kreeger came to PDE as a science coordinator to put together the biennial Delaware Estuary Science and Environmental Summit (see page 3). Over the past 15 years, she designed and built PDE's portfolio ranging from widespread to specific restoration programs.

But there is more to Danielle Kreeger, Ph.D. than science. She is a teacher, an animal lover, a mentor, a gardener, a fisher and hunter, a diver, a wife, a mother, an antique bottle collector, a black belt in karate, and a life-long surfer. She never pauses.

"Danielle is a force, said PDE's Restoration Programs Manager Josh Moody, Ph.D. "Her love for science and the ecology of the Delaware Estuary is palpable and infectious, and that love makes her a fabulous and effective scientist, teacher, and leader. I consider myself very fortunate to have had, and continue to have, the opportunity to learn from and work with her. The whole Estuary is fortunate to have her."

### A NON-TRADITIONAL UPBRINGING

Kreeger credits her passion for science and nature to her family and a nontraditional upbringing that was part 1960s peace and love, academia, and childhood summers at the beach. Raised on a farm in south-central Pennsylvania, her mother and stepfather were hippies who followed the 1960s and 70s peace movement toward getting back to the land.

"I was your barefoot flower child living on a farm," Kreeger said. "It was a very love-filled, very close-to-nature upbringing."

Alternatively, her father and stepmother were equally influential, being educators and elementary school principals. Kreeger's father, a Vietnam combat veteran, became a pacifist after the war and returned to school for his G.E.D., bachelor's and master's degrees, and Ph.D. certificate.

"I credit my father, mainly, for lighting the fire in me to think," Kreeger said.

She also spent time with her grandmother at the beach in Ocean City, Maryland, where she learned to surf, and where swimming, fishing, and combing the shore sparked her love for sea creatures.

"Surfing was my gateway drug to marine biology," said Kreeger, who also dives and snorkels.

### SURFING

Today, she surfs several times a year, often with her son, Austin, 22. Her home office has a dozen surfboards hanging from the ceiling.

"I want to be one of those 'soul surfers' in my 80s if I'm lucky enough to have the health to do it," she said.

Kreeger also is a longtime practitioner of karate, which she finds helpful for physical and mental fitness. She was supposed to test for her fourth-degree black belt status last fall, but couldn't due to the COVID pandemic. She also metal detects and collects antique bottles and shellfishery-related paraphernalia.

"Every found object and artifact from the past has a story to tell, especially if it was lost or cast away as trash," Kreeger said.

### GETTING HOOKED ON THE LARGER QUESTIONS

Initially, Kreeger wanted to be a veterinarian because she loves animals. Later, as an undergraduate at Penn State University, she shifted to marine biology to study sharks, rays, and turtles. When she applied for graduate school, she found an opportunity to study oysters and salt marshes as a research assistant at the University of Delaware.

Kreeger's formative research focused on questions related to the health and nutrition of marine shellfish, such as oysters and mussels. She got hooked on larger questions related to freshwater systems, freshwater mussels and zooplankton. If one oyster, freshwater mussel, or ribbed mussel filters gallons of water per day to meet their nutritional demands, what does a whole reef of oysters mean for water quality, and what does that complex reef habitat mean for the fish that live there?

She continued that work at Oregon State University where she earned her doctorate, and through her post-doctorate work at Plymouth Research Laboratory in Plymouth, England, which is the world's oldest marine laboratory.

### ADDRESSING GAPS IN THE DELAWARE ESTUARY

After the 2005 Science Summit, Kreeger took the lead on a paper that identified the top science and management needs of the Delaware River Watershed. PDE supported efforts that others were making toward those needs. Where there were gaps, Kreeger found other experts with which to design new programs and find funding. These efforts led to numerous regional initiatives such as the Mid-Atlantic Coastal Wetland Assessment Program, Delaware Estuary Benthic and Living Shoreline Initiatives, Regional Restoration Initiative, and the Freshwater Mussel Recovery Program.

### TEACHER, MENTOR, FRIEND

PDE staff on the science team look to Kreeger as a supervisor and a teacher and mentor.

"Working with, and learning from, Danielle is an ever-evolving and exciting privilege," said PDE's Wetlands

**"A whole world of new applied science and engineering is coming, with nearly unlimited business opportunities for a nature-based economy." — DANIELLE KREEGER**

Coordinator LeeAnn Haaf. "She challenges us, nurtures us, supports us, and works tirelessly for us. Danielle has a whimsical nature that really allows her to think bigger picture—like connecting dots that no one else quite sees yet."

Others talk about how she encourages innovation.

"Danielle always has eyes on the horizon and pushes for thinking beyond next logical steps," said PDE's Shellfish Coordinator Kurt Cheng.

Roger Thomas, Ph.D., Section Leader at the Academy of Natural Sciences at Drexel University, has known Kreeger for more than 25 years and has worked with her on many projects.

"Danielle has been an invaluable collaborator and is very good at designing programs that seek to answer the fundamental questions being asked," Thomas said. "Danielle is also one of the best field biologists I've ever worked with, willing to go the extra mile no matter what the conditions may be, and always with a smile and kind words for those she works with. I look forward to working with her on our current freshwater mussel projects and new opportunities in the future."

### FUTURE

Today, Kreeger thinks beyond protection and restoration of wetlands, oyster reefs and mussel beds. The traditional management paradigm is to restore to historic conditions, but with climate change this is not always possible, or may not even be advised in some situations.

"With climate change, nature is on the move," Kreeger said.

She often talks about the coming paradigm shift and a "green tech revolution" whereby foundational species and natural habitats are engaged as "allies" in a battle to sustain and enhance life-sustaining ecosystem services that are pinched by climate change and development.

"A whole world of new applied science and engineering is coming, with nearly unlimited business opportunities for a nature-based economy," Kreeger said. "This isn't idealism – it will be necessary."💧



# WINNING SUCCESS STORIES FROM THE CCMP

Last year, we asked organizations from around the Delaware River Watershed to submit projects to track progress in implementation of the Delaware Estuary Program's Comprehensive Conservation Management Plan. We also ran a contest for the best projects that reflect contributions to clean waters, healthy habitats, and strong communities. Two projects shone above the rest by respectively demonstrating creative innovation and community-based collaboration. PDE is proud to share these success stories.



Graduate student Janine Barr processes water samples at the Rutgers Cape Shore Laboratory during an oyster experiment. Photo Courtesy of Janine Barr.

## MEASURING OYSTER FILTRATION

Winner, *Demonstrating Creativity and Innovation* category

By Janine Barr, Masters Student, Graduate Program in Oceanography, Rutgers University

Sometimes science is waiting for oysters to poop.

Last fall, Patty Woodruff and Jen Gilmore, shellfish technicians from Rutgers University's Haskin Shellfish Laboratory, stood on a dock in Rehoboth Bay, Delaware, and waited for a tank of oysters to expel the products from their most recent meal. Their patience and attention to oyster waste is important to science, the environment, and for clean water in the Delaware Estuary. This is why this work won the *Demonstrating Creativity and Innovation* category in Partnership for the Delaware Estuary's (PDE) What's Your Success Story Contest.

Nutrient pollution in estuaries and lagoons has been a longstanding and widespread issue. Nutrients cause excessive algae and other plant growth which robs the water of oxygen that fish and other wildlife need to live. The water quality benefits of oyster filtration are well documented. Oysters are suspension feeders, meaning they eat particulate matter floating in the water, and improve the quality of water around them. Site-specific data on oyster filtration, however, is lacking. By measuring oyster feeding and filtration under recreated natural estuary conditions, scientists can measure the water quality benefits in natural oyster beds and on oyster farms in the Delaware Bay to see how each system may improve water conditions. In 2019 a team from Rutgers University, in collaboration with PDE and the National

This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP	<b>HEALTHY HABITATS</b>	<b>GOAL H3</b>	<b>Increase and Improve Fish and Shellfish Habitat</b>
		<b>STRATEGY H3.2</b>	<b>Restore oyster beds and productivity in and around the Delaware Bay</b>

Photo Courtesy of Janine Barr.

Oceanic and Atmospheric Administration's Northeast Fisheries Science Center (NOAA NEFSC), began a robust research effort in the Delaware Bay area to explore the role of oysters in mitigating nutrient pollution.

In each experiment, scientists bring a flow-through chamber to the field, place local oysters in the chamber, and closely monitor each oyster to collect all biodeposits, or waste, for later analysis at a lab. Team members repeatedly visit each site throughout the year to capture seasonal changes in water conditions and oyster filtration behavior. The oysters from the experiments are also moved to low-salinity water conditions for a subsequent experiment to see how climate change stressors (i.e., increased frequency and intensity of rain or other precipitation) may alter oysters' ability to provide water quality benefits. This is relevant to the Delaware Bay because the region is expected to see an increase in the intensity and number of storms as climate change continues and intensifies.

These experiments are particularly exciting because the experimental chamber was designed at NOAA NEFSC to provide oysters with a continuous supply of flowing local water. This creates an environment that mimics the natural conditions oysters would experience on reefs or farms, meaning the experimental results will more closely reflect the oysters true feeding behavior, and better inform local water quality management strategies. So far, Rutgers is processing data collected in 2020, but more experiments are expected to take place this year. To learn more, go to <https://hsrl.rutgers.edu/>.💧

## CHESTER RIDLEY CRUM WATERSHEDS ASSOCIATION

**Winner, Collaborative/Community-Based Project category**

*By Meghan Lockman, Executive Director, Chester Ridley Crum Watersheds Association*

Chester Ridley Crum Watersheds Association (CRC) in Newtown Square, Pennsylvania, didn't get to celebrate its 50th anniversary last year due to COVID-19. But, Executive Director Meghan Lockman, said the group is looking forward to celebrating this year and will continue with its initiative, like its 15-year-old tree planting program, throughout the Chester, Ridley, and Crum Creek Watersheds.

In 2019, the CRC planted approximately 500 trees and more than 100 shrubs. In 2020, the CRC planted 120 trees and 25 shrubs. Staff and volunteers for CRC plant



Volunteers participate in a streams cleanup through the Chester Ridley Crum Watersheds Association (CRC). In addition to cleanups, the CRC also has a tree-planting program. Photo courtesy of Meghan Lockman, Chester Ridley Crum Watersheds Association.

native species from hickory and pin oak to red maple and walnut trees.

"If they are native to southeast Pennsylvania, we do it," Lockman said.

For this work, and the tree program's contribution to the Delaware Estuary's Comprehensive Conservation Management Program, CRC won PDE's What's Your Success Story Contest in the Collaborative/Community-Based Project category.

The CRC's overall goal for the tree program is to create riparian buffers (areas or strips of vegetation near streams that provide shade and pollution protection from nearby land use) to improve water quality in the watershed, provide wildlife habitat, and oxygen into our atmosphere. Native trees and shrubs also help hold soil in place – a massive boon for the watershed, as sediment has been a problem for the waterways.

"Over time, the roots create anchors to keep the dirt from falling into the creek," Lockman said.

The CRC, which started in 1970, has its tree planting program, performs stream cleanups, and organizes talks on various environmental topics. Its jurisdiction is Chester and Delaware counties in Pennsylvania, including a population of about 250,000 in 42 municipalities. The Chester, Ridley, and Crum Creek Watersheds are a critical drinking water supply, Aqua Pennsylvania, a local water utility company.

Although CRC didn't get to plant as many trees last year as it wanted, this year it's full steam ahead and Lockman said the program would even expand. The plan is to plant in six sites this spring and at six or seven locations in the fall with the help of two large grants. To get involved with CRC, visit <https://www.crcwatersheds.org/what-we-do/volunteer-program/>.💧

This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP	HEALTHY HABITATS	GOAL H2	Stem Forest Loss
		STRATEGY H2.2	Promote stewardship practices by local partners for the health and sustainability of forests for water quality



# 25 YEARS OF PEOPLE, PERSISTENCE, AND PARTNERSHIPS

**THIS YEAR,** as Partnership for the Delaware Estuary (PDE) celebrates its 25th anniversary, are pleased to report that the host of the Delaware Estuary Program is going strong. PDE is a respected organization that leads science-based and collaborative efforts to improve the tidal Delaware River and Bay in Delaware, New Jersey, and Pennsylvania. With the help of PDE's scientific and engagement programs, the Delaware River's quality has improved over the last 25 years. During this time, PDE reinforced 1,300 feet of shoreline in the Delaware River Watershed, established a freshwater mussel laboratory at Fairmount Water Works Interpretive Center in Philadelphia, in partnership with the Philadelphia Water Department and is launching a large-scale freshwater mussel hatchery and education center at Bartram's Garden in the City of Brotherly Love. PDE also recently oversaw an update of the Delaware Estuary Program's Comprehensive Conservation Management Plan (CCMP), which also celebrates its 25th anniversary this year.

While PDE has a lot more work to do in the Delaware River Watershed, it has come a long way since its small beginnings and has much to celebrate.

## IN THE BEGINNING...

"The Partnership for the Delaware Estuary Program was born out of the Delaware Estuary Program," PDE Executive Director Kathy Klein said.

Before there was an office, staff, or programming, a group of concerned citizens in the 1980s wanted the Delaware River Watershed to be better for everyone. It would take nearly a decade for PDE to be established and another 10 years for the organization to become the Program's host and coordinator.

In 1988, the Delaware Estuary Program became part of the Environmental Protection Agency's newly formed National Estuary Program, a program to protect and restore the water quality and ecological integrity of estuaries of national significance. There are now 28 Estuary Programs throughout the United States and Puerto Rico.

For the first few years, a Management Conference composed of representatives from EPA Regions 2 and 3, Pennsylvania, New Jersey and Delaware, oversaw a number of committees that included participation from varying disciplines and areas of expertise. A great deal of effort was made to engage the general public in the Program through special events, public meetings, media outreach,

an 800 number, and a newsletter. The committees also spent 6 years writing the first CCMP for the Delaware Estuary, a long-term plan that the EPA requires of all National Estuary Programs. The document had 450 pages and 77 action items to improve the health of the Delaware River and Bay and to help people understand its value. The original CCMP charged PDE with being an advocate for the Delaware Estuary Program to help implement CCMP actions through on-the-ground work and fundraising.

## GROWTH

A few things contributed to PDE's growth: the organization's ability to foster partnerships with various agencies, from the government to the private sector, becoming the host of the Delaware Estuary Program, and expanding to become a science-based organization.



A lapel pin from the Delaware Estuary Program's early days. Photo by Roy Denmark.





Staff from Partnership for the Delaware Estuary work at the second Pennsylvania Coast Day in 2003 at the Fairmount Water Works Interpretive Center in Philadelphia.

"We always really strived to work with all different kinds of stakeholders," Klein said. "And that is the basis of the Estuary Program itself."

Klein joined Partnership for the Delaware Estuary in 1997 as a part-time administrative assistant under the then Executive Director Bud Watson. The state of Delaware provided office space on the second floor of a former church parsonage at Bellevue State Park. Klein became PDE's executive director after Watson left about a year later. Under Klein's direction, PDE became the host of the Delaware Estuary Program. When she left PDE in 2007 (she returned 11 years later), the organization had 12 employees and had moved to its existing home at 110 South Poplar Street in Wilmington. Under former Executive Director Jennifer Adkins, PDE continued its growth by doubling its staff.

Between 1997 and 2007, Klein and former Outreach Director Lisa Wool established programs and events such as drawing contests, Pennsylvania Coast Day (now the Delaware River Festival), Corporate Environmental Stewardship Program, and PDE's annual Experience the Estuary Celebration fundraising dinner.

"In the beginning, we basically had a few strong programs, and over time, we built upon these efforts," Klein said.

They focused on celebrating the Delaware Estuary and encouraging people to explore all it has to offer.

"We've always had a passion for what we do," Klein said. "That passion can be contagious. It's compelling when you're doing something that you believe in, and you share that excitement and get other people to join in. All those things have led us to be successful over the years."

Former Board Chairman Kevin Donnelly said the diversity and scope of PDE's staff provided the intellectual energy to allow growth to happen, as has PDE's Board of Directors, with its mix of business, academic, and government interests.

"It can be a real challenge, and I think the Partnership has demonstrated its ability to continue to evolve and improve in its delivery of programs, in its communication of complex, technical and biological issues, in its outreach with communities," Donnelly said.

Irene Purdy, EPA Region 2's Regional Coordinator for the Delaware Estuary Program, talks about "passion from the heart" as a hallmark PDE's staff and leadership for the mission.

"The Partnership for the Delaware Estuary has experienced incredible organizational growth and impact over the past 25 years," Purdy said. "I have had the honor of interacting closely with the Partnership for over two decades. I have witnessed PDE's evolution



PDE's Science Technical Analyst Ellie Rothermel does some measuring at a living shoreline at Matt's Landing, New Jersey.

from initially serving as an effective and dedicated coordinator of the Program's education and outreach activities to its role as host of the Delaware Estuary Program, a National Estuary Program. The Partnership is a regional force for environmental good. The thoughtful team has steadily strengthened and broadened the Program's scientific expertise and influence and has concurrently deepened its collaborative skills and engagement with partners."

## A SCIENCE-BASED ORGANIZATION

To Jay Springer, with the New Jersey Department of Environmental Protection, PDE hit its growth turning point when it became the host of the Delaware Estuary Program, brought PDE's Science Director Danielle Kreeger, Ph.D. aboard, and became a science-based organization. That's when PDE started "being a force in the Estuary."

"The one thing that really impresses me about PDE is the fact that it's science-based," said former PDE Board Chairman Roy Denmark. "I think that has established it as the recognized expertise that it has."

continued on page 10 ►

continued from page 9

One of Kreeger's first tasks when she joined PDE was to plan the organization's first Science and Environmental Summit in 2005. She compiled information from that Summit into a document that identified the Delaware Estuary's top science and management needs. Contaminants and wetland erosion topped the list.

Gradually, as PDE worked through this list, PDE let science lead the way in its programming and implementation of the CCMP. It now identifies as a science-based organization. Kreeger spearheaded several PDE programs, such as the Mid-Atlantic Wetlands Coastal Assessment, the Delaware Living Shorelines Initiative, the Freshwater Mussel Recovery Program, and the Mussels for Clean Water Initiative.

## THE FUTURE

The future is often hard to see, especially when you're looking 25 years ahead. Whatever the future holds, PDE will continue to thrive.

"We have some really big challenges," Klein said. "Climate change is huge; finding ways to strive for environmental justice; and being strategic by developing a shared agenda for priorities; are all important."

The CCMP serves as a guide for how PDE grows and tackles problems by providing a roadmap.

"In order for the CCMP to be successful, lots of partners need to be involved in helping to implement it," Klein said. "We can't do it all ourselves."

Klein said that it comes down to the three Ps, and that's passion, perseverance, and partnerships. 💧

## MAKING WAVES



## THE SAN WITH A PLAN

*By Erica Rossetti, PDE SAN Coordinator*

The Schuylkill Action Network (SAN) has a new Plan for the next five years. The SAN 2021-2025 Strategic Action Plan outlines specific actions, objectives, and progress targets. This will help the organization attain its overarching vision of clean water and a healthy Schuylkill River Watershed accessible for all.

The new Plan is a culmination of work that began in May 2019. Since that time, the SAN has been gathering feedback via workgroup sessions, public feedback events, surveys, and internal analyses. SAN partners and stakeholders examined the organization's Strengths, Weaknesses, Opportunities, and Threats. They identified the current and upcoming resources, skills, and environment needed for Schuylkill River Watershed communities to succeed in the next five years. Some examples of emphasized focus areas include climate change, infrastructure, leadership, inclusivity, holistic planning, and funding.

The Plan also identifies new values: action, collaboration, resilience, leadership, equity, and science. It is hoped that such values will permeate through the SAN's planning, processes, and projects through 2025 and beyond. Among the group's many goals is the preservation of 5,000 acres within the Schuylkill River Watershed, removal of 5 million pounds of trash securing \$500 million in infrastructure investment in the watershed.

Find out how you or your work can align with the Plan by visiting [www.SchuylkillWaters.org/about-us/strategic-plan](http://www.SchuylkillWaters.org/about-us/strategic-plan), or by contacting Erica Rossetti, SAN Coordinator, at [erossetti@delawareestuary.org](mailto:erossetti@delawareestuary.org). 💧



## EARTH DAY AND ARBOR DAY:

Virtually Fantastic Ways to Celebrate

April 19-23



The environment is such an essential part of life that the ways you can find to celebrate it are virtually endless. For the second year, Partnership for the Delaware Estuary (PDE) and the City of Wilmington will hold the City's annual Earth Day and Arbor Day celebration virtually.

There will be a week of online events and activities planned from April 19 to 23 via social media, YouTube, and the PDE website. Each day will have a different theme, including transportation, gardening, and of course, water. Stay tuned for posts about each day of the week, including an online scavenger hunt for prizes! Go to PDE's website at [www.delawareestuary.org](http://www.delawareestuary.org) and the city's website at <http://www.wilmingtonde.gov/citytrees>.

This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP		<b>STRONG COMMUNITIES</b>	<b>GOAL 2</b>	<b>Improve Public Awareness and Stakeholder Engagement</b>
		<b>STRATEGY C2.2</b>	Utilize events to increase stewardship and engage new people	

## LOVIN' THOSE LIVING FOSSILS

Horseshoe Crab Plush Toys for Sale Online



The horseshoe crab, or *limulus Polyphemus*, is so ancient, it is considered a living fossil. But they're not exactly cuddly, are they? Not to worry, Partnership for the Delaware Estuary has that covered.

For just \$16, you can buy a cuddly, plush horseshoe crab toy for yourself or for the environmentalist in your life. All purchases go toward PDE to support its work and research toward clean waters, healthy habitats, and strong communities.

These plush toys make great gifts for birthdays, anniversaries, Mother's Day, Father's Day, graduation, Christmas, Hanukkah, and every occasion in between! Go to [delawareestuary.square.site](http://delawareestuary.square.site) and get your lovable *limulus* today.

This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP		<b>HEALTHY HABITATS</b>	<b>GOAL H3</b>	<b>Increase and Improve Fish and Shellfish Habitat</b>
		<b>STRATEGY H3.4</b>	Protect and restore horseshoe crabs and their habitat	

## URBAN WATERS WEBINAR SERIES

Each Thursday at noon from March 25 to April 8

Partnership for the Delaware Estuary held an Urban Waters webinar series last fall. Now that series returns this spring for three more webinars called Environmental Justice and Brownfields Communities of Practice.

Each Thursday at noon from March 25 to April 8, this series will provide visual background information on environmental justice policies and practices, as well as brownfield project updates from the Delaware River Watershed's Urban Waters cities. Cities include Camden, New Jersey, Philadelphia, Chester, Pennsylvania, and Wilmington, Delaware.

This series comes to you courtesy of the Delaware River location of the Urban Waters Federal Partnership, which reconnects urban communities, particularly those overburdened or economically distressed with their waterways, by improving coordination among federal agencies.

To register for the webinar series and see the list of speakers, please visit [www.delawareestuary.org/save-the-estuary/urban-waters/](http://www.delawareestuary.org/save-the-estuary/urban-waters/).



This article relates to the Delaware Estuary Program's Comprehensive Conservation & Management Plan

CCMP		<b>STRONG COMMUNITIES</b>	<b>GOAL 2</b>	<b>Improve Public Awareness and Stakeholder Engagement</b>
		<b>STRATEGY C2.2</b>	Utilize events to increase stewardship and engage new people	





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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, Inc. (PDE), is a private, nonprofit organization established in 1996. PDE is the host of the Delaware Estuary Program and leads science-based and collaborative efforts to improve the tidal Delaware River and Bay, which spans 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](http://www.DelawareEstuary.org).

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