



Partnership for the  
**DELAWARE  
ESTUARY**

**20**  
YEARS *of*  
**CLEANER  
WATER**

**2016**  
**ANNUAL  
REPORT**

*Connecting people, science, and nature  
for a healthy Delaware River and Bay*

## MESSAGE *from the* BOARD CHAIR



It's hard to believe that 2016 is my final year serving as a Board Member at the Partnership for the Delaware Estuary (PDE). While it's tough to end my tenure, I couldn't have picked a better final year – PDE's 20th Anniversary.

Anniversaries are a time to reflect and celebrate. If you attended the Experience the Estuary Celebration this year, then you know we can throw a good party! If you asked me to reflect on what makes PDE so great, I would say three things.

First, I would explain about the collaborative spirit in which the organization runs. Partnership is the first word in our name – and it's deliberate. The second thing I would talk about is how strongly based PDE is in scientific research and how it guides PDE's work. Lastly, and most importantly, I would tell you about how passionate its staff, partners, and supporters are about the Delaware Estuary.

What brought me to PDE was my love of the environment, the beautiful streams in my home state of New Jersey, and the strong desire to give back. What I found at PDE is an organization committed to improving the Delaware River and Bay for current and future generations.

Thank you for being part of PDE's 20 year journey. It is my sincere hope that you continue to support PDE for this year and for years to come.

*Joni L. Powell*

Joni L. Powell  
2016 Board Chair



### 2016 Board of Directors

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Lisa Lindsey – PBF Energy Company LLC

Kimberly Long – Exelon Corporation

Gus Mergenthaler – Tetra Tech, Inc.

#### New Board Members in 2017

Michael Dillon – Manko, Gold, Katcher  
and Fox LLP

Christie Ogino – Brown and Caldwell

Joseph M. Tarsavage – Kleinfelder



## MESSAGE *from the* EXECUTIVE DIRECTOR

This year the Partnership for the Delaware Estuary celebrated its 20th anniversary. While the journey we've been on as an organization since 1996 is astounding, you may be surprised to learn how long this partnership was in the making.

Our beginning can be traced all the way back to the Clean Water Act of 1972. It then continued for several decades, fueled by the vision and passion of innumerable people. Their hard work eventually culminated in a plan agreed to by the governors of Delaware, New Jersey, and Pennsylvania, the acceptance of the Delaware Estuary into the National Estuary Program, and the creation of PDE.

Today, PDE continues to grow. We have a staff of 20 supported by a strong board of directors, a scientific advisory committee, a management conference made up of agencies from around the region, and hundreds of local partners. With 20 years of accomplishments and experience, we're revising the *Comprehensive Conservation and Management Plan for the Delaware Estuary* for the first time.

For me though, the importance of our work here at PDE all comes back to a feeling. It's the feeling you get outdoors that cannot be manufactured or duplicated. It's that deep breath you take, while looking at a shimmering bay or babbling brook, or listening to a forest alive with bird song. It's a feeling I want everyone to share and one that needs to be safeguarded for the next generation.

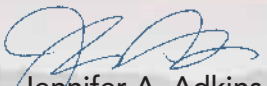
  
Jennifer A. Adkins  
Executive Director



Photo by Jim White

## 2016 AUDITED STATEMENT *of* ACTIVITIES

### *For the year ended December 31, 2016*

#### Support and Revenue:

Government Grants.....	\$1,500,264
Contributions and Grants.....	\$1,180,853
Other Revenue.....	\$ 87,411

**TOTAL SUPPORT AND REVENUE..... \$2,768,528**

#### Expenses:

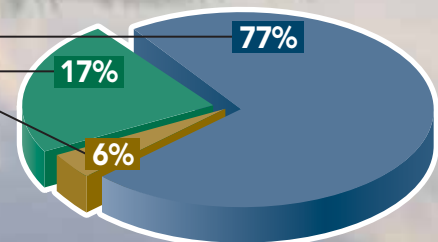
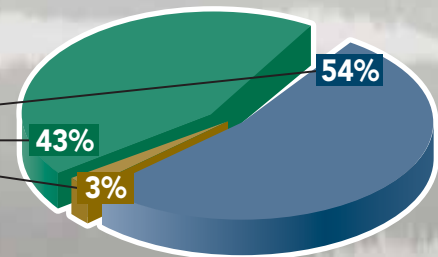
Program.....	\$1,884,289
Management and General.....	\$ 409,596
Fundraising.....	\$ 150,382

**TOTAL EXPENSES..... \$2,444,267**

**Change in Net Assets..... \$ 324,261**

**Net Assets at December 31, 2015..... \$1,669,293**

**Net Assets at December 31, 2016..... \$1,993,554**



\* Audit not complete at time of printing.  
Final audited statements can be found on  
our website at [www.DelawareEstuary.org](http://www.DelawareEstuary.org).

*Please remember PDE in your giving!*



Recycled oyster shells being "cured" after being collected from local restaurants.

## OYSTERS GALORE

We're big fans of Delaware Bay oysters. Among their many benefits, they're delicious, help clean water, and are great for the economy. For years we've worked with partners to help restore Delaware Bay oysters and have been using their shell in restoration projects across the Estuary.

PDE's new **Oyster Shell Recycling Program** kicked off in early summer, with great success. Over 18 tons of shell has been recycled in just 6 months. The used shell was collected from 11 restaurants in New Castle County, Delaware. Rather than going to a landfill, the shell is collected and then "cures" for several months in a pile. Next spring, we'll bag the shell and deploy it at restoration sites across the Estuary.

**Oyster castles** are brick-like structures used at several of our living shoreline sites. They help protect eroding shorelines from strong waves and also attract baby oysters, which attach and grow on the sides of the castles. Since 2014, over 24,000 baby oysters have attached to oyster castles at our living shoreline site near Milford, DE. As of 2016, approximately 50% of those oysters are older than one year, which indicates that the population is becoming healthy and stable.

Between 2005 and 2009, shell planting in the Bay had a \$40 to \$1 return on investment, saved the oyster industry from collapse, and is the reason we can enjoy fresh oysters from Delaware Bay today.



Scientists count oysters on the oyster castle structures along the Nantuxent River in NJ.

## CLASSROOM CONNECTIONS

It is our belief that classrooms do not solely exist indoors. The great outdoors, and the Delaware Estuary, provide abundant opportunities to learn. Our ultimate goal at PDE is to share our love of the Estuary with students of all ages.

In July, 25 teachers attended our **Watershed Workshops**. During the workshops, teachers learned hands-on ways to engage students and bring "estuary education" into their classrooms. Activities like nature walks, citizen science projects, and wetland and agriculture tours provided a

wide range of learning opportunities. These experiences served to enhance the teacher's regular lesson plans and provided example activities that are designed to be easily transitioned to indoor classrooms.

Connecting people with the environment is a key goal at PDE. In September, thousands had that opportunity at the 17th **Pennsylvania Coast Day** celebration. This annual event was held on the banks of the Delaware and Schuylkill Rivers in Philadelphia. Attendees enjoyed boat rides, kid's crafts, and an eco-themed scavenger hunt. Thank you to the 27 exhibitors who helped make this day a success and provided learning opportunities for everyone!



Teachers taking part in this summer's Watershed Workshops.

Over 20 years, PDE has reached an estimated 4 million people at events like the Watershed Workshop and Earth Day celebrations and through website downloads and publications.



Kids enjoy a lesson from one of the booths at the Coast Day celebration.





Testing new techniques to survey mussels in the Delaware River near Philadelphia.

## COOL SCIENCE

As a science-based organization, we love getting muddy in the field, wading in streams, and analyzing data. Each year we make new discoveries and unlock more information about our Estuary, which helps to guide and inspire our work, partners, and supporters.

Freshwater mussels are shellfish that filter water and live up to 100 years. At one time, millions could be found in a single stream, but today, most species are endangered. Since 2008, PDE has been studying their health and restoring them through the **Freshwater Mussel Recovery Program**. In 2016, our science team put electronic tags on 50 freshwater mussels in southeastern PA. Since 2011, over 1,250 freshwater mussels have been tagged and are monitored yearly for their health and growth.

Marshes are a hallmark feature of the Delaware Estuary. A healthy marsh cleans and filters water, provides a home for fish and birds, and protects communities during storms. Since 2008, PDE has studied more than 380 wetland sites as part of the **Mid-Atlantic Coastal Wetland Assessment**. This year, our scientists gathered data from 40 sites across the estuary. The data will tell us about wetland health and help guide our restoration efforts.



Monitoring the health of marshes in New Jersey.



Collecting trash near Boathouse Row in Philadelphia during the Schuylkill Scrub.

## TALKING TRASH

Everyday we're confronted with litter. And the fact is that most trash on the ground will eventually end up in our waterways. Each year, PDE participates in initiatives to help reduce the amount of trash in the Estuary.

One that we coordinate is the **Schuylkill Scrub**, a watershed-wide cleanup that takes place each spring in the Estuary's largest watershed. This year, the Scrub again joined forces with the Great American Cleanup of Pennsylvania, yielding incredible results. During the 3-month cleanup, more than 29,000 volunteers participated in 797 cleanups and removed more than 516,000 pounds of trash. Since its inception seven years ago, nearly 9 million pounds of trash has been removed from the Schuylkill Watershed.

Can artwork help reduce litter and pollution? We think so! In 2016, PDE teamed up with the Philadelphia Water Department on the **Green Cities, Clean Waters** art contest. Over 1,260 students submitted artwork with a clear message – keep trash off the streets and out of our waterways! This summer, four of the winning drawings were transformed into temporary street art stickers, placed in neighborhoods throughout the city. These stickers will help educate thousands of people about the importance of keeping our cities green and our water clean!



Students show off their artwork which appears in a calendar distributed to Philadelphia's schools.

Since 2008, PDE has provided **science fellowship and intern opportunities** to recent graduates, and post graduates, all of whom have gone on to successful careers.

In the last ten years, almost **50,000 volunteers** have removed over 600 tons of trash from the Schuylkill, Christina, and Delaware River.





### Upper Schuylkill Tour

In September, the Schuylkill Action Network hosted a tour of restoration projects that have successfully reduced pollution. The tour included stops at an abandoned mine treatment site, a protected farm along the Schuylkill River, and a sustainable dairy farm.

1



### Little Tinicum Island Clean-up

In September, 62 volunteers helped clean up the Little Tinicum Island on the Delaware River. Over 15,000 pounds of trash, tires, and recyclables were removed from the island that day!

2

### Rain Gardens

In 2016, four rain gardens were planted by students, teachers, and volunteers at their schools. In addition to helping manage storm water, these rain gardens will also provide outdoor learning opportunities for the schools and their communities.



3



### Living Shorelines

In 2016, PDE installed three bio-based living shorelines along the Nantuxent River in NJ and monitored 12 existing ones to study their progress. Three sites were also enhanced with native grasses and oyster shell bags.

4

## MAP DELAWARE

The Delaware Estuary spans the head of tide at Trenton, Delaware Bay. An estuary is where fresh and salt water meet.





# of the ESTUARY

spans 134 miles from the  
NJ to the mouth of the  
ary is a tidal waterway  
l salt water mix.



5



## Scholastic Awards

Students at the Perkiomen Valley High School received the SAN Scholastic Drinking Water Award. These students helped to plan for and install a rain garden, vegetated swales, and rain barrels in their community.

6

## Mussel Exhibit

In 2016, PDE worked with the Fairmount Water Works to develop a new exhibit on freshwater mussels. Opening in winter 2017, it will demonstrate how freshwater mussels reproduce and why they're important for restoration.



7



## Volunteer Freshwater Mussel Surveys

This year, PDE trained 67 volunteers at 7 workshops to search for freshwater mussels in local waterways. Since 2012, over 65 volunteer surveys have been completed.

8



## Earth Day

In April, PDE and the City of Wilmington celebrated the 45th anniversary of Earth Day in downtown Rodney Square. Kids and adults alike enjoyed fun crafts, native plant giveaways, and eco-friendly raffles.

9



## Experience the Estuary Celebration

Over 360 supporters joined PDE at our 20th anniversary celebration! Thank you to our sponsors and everyone who came out for the live music, fresh Delaware Bay oysters, and silent auction.



# 2016 FUNDERS, SPONSORS *and* DONORS

The Partnership for the Delaware Estuary thanks everyone who supported our work over the past year with contributions, grants, event sponsorship, cooperative agreements, and donations.

## Grants, Contracts, & Project Funding Support

3Mgives  
The Academy of Natural Sciences  
of Drexel University  
Barnegat Bay Partnership  
CARDNO  
Center for the Inland Bays  
City of Milford  
City of Wilmington  
Delaware Department of Natural  
Resources and Environmental Control  
Delaware Department of Transportation  
Delaware Nature Society  
Delaware Recycling Public  
Advisory Council  
Delaware Water Infrastructure  
Advisory Council  
DuPont Clear into the Future  
Esri  
Flying Fish Brewing Company  
The Geraldine R. Dodge Foundation  
GreenWatch Institute  
Longwood Gardens  
National Oceanic &  
Atmospheric Administration  
The Nature Conservancy,  
New Jersey Chapter  
New Jersey Department of  
Environmental Protection  
Pennsylvania Coastal Zone  
Management Program  
Pennsylvania Department of  
Environmental Protection  
Pennsylvania Sea Grant  
Philadelphia Water Department  
PSEG Foundation  
Rutgers University  
Salesforce Foundation  
Schuylkill River National and  
State Heritage Area  
Sovereign Consulting  
SUEZ  
Sunoco Foundation  
University of Maryland Finance Center  
U.S. Environmental Protection Agency  
Wakefern Food Corporation/ShopRite  
Welfare Foundation  
The William Penn Foundation  
Wilmington Flower Market

## Corporate and Community Environmental Stewardship Program (CESP)

City of Millville  
Logan Generating Plant  
Mannington Mills  
New Castle County  
Noramco, Inc.  
Pepco Holdings, Inc.

## \$500 to \$999

All Saint's Parish Thrift Shop  
Roy Denmark & Judy Hykel  
Tom & Melina Ei  
Gross Graphics  
Kathy Klein & David Paul  
Alison Kraus & Dean Pantellere  
Kimberly & Scott Long  
Shawn & Jill McGlinchey



## 2016 Donors

### \$1,000 and Above

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Education Foundation

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Octoraro Native Plant Nursery  
Philadelphia Energy Solutions  
Joni L. Powell  
Thomas C. Roberts  
Tracey Whitesell & Terrance Huettl

### \$250 to \$499

Anonymous (3)  
Ashland Inc.  
David Athey  
Ed & Ridgely Biddle  
Danielle Bower  
David & Kathleen Brownlee



Jenifer N. & John Burghardt  
David & Debbie Bushek  
Leon K. Chain  
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Deborah Dignan  
Robert K. Dobbs Jr.  
Kevin Donnelly  
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Ann Faulds & Christopher Robinson  
Jeff & Karen Fleming  
Michael F. Fountain  
Leah Gaffney & Mike Pickel  
Victor J. Giudice  
Marc & Sharon Gold

### \$150 to \$249

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Eric Sprengle & Diana Pierce  
Rick & Susan Taylor  
Robert G. Traver  
Alice Vandever  
Whibco Inc.  
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Bernie Bittner  
Don & Becky Brill  
Andy & Hilde Burger  
Steven & Margaret Castorani  
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Elizabeth Horsey  
George Horvath  
Richard Huffman  
John Imle  
Douglas Janiec  
Brian Jones  
John A. Jones  
Charles Karl  
Luisa Lassova  
Lisa J. Lindsey  
Drew Mihocko  
Kerri & Joe Morris  
Anne M. Murphy  
Pamela Nelson



*Salt marsh grass dwarfs our scientists along New Jersey's Maurice River.*

Robert Goldman  
Brenda Gotanda  
Lisa LaPlant  
Charles & Diane Lawrence  
Eric Lienhard & Heidi Splane  
Andrew T. Manus  
Daniel J. Martin  
David B. Mattern & Charlotte H. Crystal  
Joseph & Jeanne McAtee  
Frank McShane & Vanessa Fenton  
Andrew & Kathleen Moody  
Hiram H. Munger  
The Oyster House  
Tri-State Foot and Ankle Center  
Vicky Will & Mike Kowalski  
Frederick Wood  
Lisa Wool



*Temporary street art stickers remind Philadelphia residents and visitors to keep the city and water clean. The above sticker was placed outside the Philadelphia Zoo.*



D.R. & Lee Taylor Nolan  
 Palumbo's Car Care Center  
 Jeffrey J. Pantazes  
 Lorestine Pittman  
 David & Cindy Popovich  
 Brian J. Reidy  
 Richard Ruhl  
 Joe & June Satterfield  
 Jonathan & Gwyneth Sharp  
 Carol Spiker  
 Louisa Hill Spottswood  
 Kash Srinivasan  
 Virginia Thompson  
 Tidewater Utilities Inc.  
 Marianne Walch  
 John L. Williams

### Up to \$75

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 Atlantic County Utilities Authority  
 Donald Azuma  
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 Mark Biddle  
 David R. Blye  
 Sarah Bouboulis  
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 Senator Tom Carper  
 Mike Castle  
 Sharon Chance  
 Jack Cheezum  
 Marianne B. Cinaglia  
 Stephen Clark  
 Kara Coats  
 Dorothy Colburn  
 Laura Copeland  
 James & Joanne Cordingley  
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 David Carter & Marjorie Crofts  
 Frederik Defreytag  
 Eric Delss  
 Anne DePaul  
 Jim Disario  
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 Michael Grove & Courtney Richmond  
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### In Honor of David Ricucci

Katherine Brady

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Anonymous  
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 Mr. and Mrs. Gene Houghton  
 The Lewes Historical Society  
 Frank R. Robinson Sr.  
 Linda A. Rudnick  
 Barbara Shelton  
 Nathalie & Tim Willard

### In Memory of Richard McSorley

David McSorley



Bradley Maule, center, the first Sojourn Steward, tracked trash along the entire Schuylkill River during the Schuylkill Sojourn.





Many thanks to Kathy Klein for her contributions to PDE and for being the Honorary Chair of the 2016 Experience the Estuary Celebration.

## 2016 Experience the Estuary Celebration Sponsors

Academy of Natural Sciences of Drexel University  
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 Philadelphia Regional Port Authority  
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 The Corinthian Yacht Club of Philadelphia  
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 The Daily Show with Trevor Noah  
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 Deerfield Golf & Grille  
 Delaware Department of Natural Resources and Environmental Control  
 Delaware Museum of Natural History  
 Robert K. Dobbs Jr.  
 Dogfish Head Brewery  
 Kevin Donnelly  
 Dover International Speedway  
 Eastern State Penitentiary Historic Site  
 Tom Ei  
 Exelon Generation Company, LLC  
 Flying Fish Brewery  
 Robert D. Goldman  
 The Grand Opera House  
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 Octoraro Native Plant Nursery  
 OPERA Delaware  
 The Oyster House  
 Painted Stave Distilling  
 Philadelphia Eagles  
 Philadelphia Museum of Art  
 Philadelphia Phillies  
 Philadelphia Rock Gyms  
 Philadelphia Union  
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 Nick Plianthos

Joni L. Powell  
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 Julie Varner  
 Virginia Vassalotti  
 Victory Brewing Company  
 Marianne Walch  
 West Chester Golf & Country Club  
 Whitewater Farm Bed & Breakfast  
 Wilmington & Western Railroad  
 Wilmington Blue Rocks  
 Fred Wood  
 Lisa Wool

## 2016 Volunteers

Thank you to all the individuals who generously gave their time and talents to help advance our mission in 2016. Some of our volunteer highlights from 2016 included:

- 20.8 tons of oyster shells recycled, with the help of 4 volunteers and 13 local restaurants.
- 3 river cleanups that removed over 520 tons of trash from the Estuary!
- Nearly 3,000 local Delaware Bay oyster shucked with the help of 7 amazing volunteers.
- Over 100 volunteer hours on PDE Board Committees.
- 3 living shorelines installed with the help of 6 volunteers.
- And so many more!

The Partnership for the Delaware Estuary makes every effort to ensure the accuracy of these listings. If you find an omission or a misspelling, please excuse our error and contact us at 1-302-655-4990, ext.114 so that we may update our records for future donor listings.



Thank you to our Experience the Estuary Celebration guests for raising funds for a freeze dryer to help us analyze the health of shellfish in the estuary.



# PARTNERSHIP *for the* DELAWARE ESTUARY



## 2016 Staff

### Executive Team:

Led by Jennifer A. Adkins, Executive Director  
Nancy Descano, Deputy Executive Director  
Andrée Tyagi, Office Manager

### Development Team:

Led by Debbie Heaton, Director of Development  
Elizabeth Horsey, Coordinator of Individual Giving  
Lorestine Pittman, Coordinator of Grants

### Education & Outreach Team:

Led by Lisa Wool, Outreach Program Director  
Shaun Bailey, Marketing & Communications Coordinator  
Kaitlin Collins, Watershed Planning Specialist  
Kate Hutelmyer, Senior Watersheds Coordinator  
Michelle Knoll, Program Specialist  
Jeffrey Long, Watershed Outreach Specialist  
Virginia Vassalotti, Senior Schuylkill Action Network Specialist

### Science & Restoration Team:

Led by Dr. Danielle Kreeger, Science Director  
Emily Baumbach, Science Planning Specialist  
Sarah Bouboulis, Habitat Specialist  
Kurt Cheng, Shellfish Specialist  
LeeAnn Haaf, Wetland Specialist  
Joshua Moody, Restoration Coordinator  
Angela Padeletti, Senior Science Coordinator  
Spencer Roberts, Science Fellow  
Science Interns: Sandra Demberger, Ryan Flannery, and Kathleen LaForce

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The Partnership for the Delaware Estuary, a National Estuary Program, leads science-based and collaborative efforts to improve the tidal Delaware River and Bay, which spans Delaware, New Jersey, and Pennsylvania.

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