



Partnership for the Delaware Estuary, Inc.
US EPA Section 320 of the Clean Water Act
National Estuary Program FY2020 Work Plan
including Addendum for Urban Waters
Ambassador

To Be Submitted: June 1, 2019

Submitted to: US EPA Regions 3 and 2

Submitted by: Partnership for the Delaware Estuary, Inc.
110 S. Poplar Street, Suite 202
Wilmington, DE 19801



302-655-4990
www.delawareestuary.org



Table of Contents

I.	FY19 SEMI ANNUAL PROGRESS REPORT (October 1, 2018 – April 30, 2019).....	3
A.	Program Office Services.....	3
B.	Education & Outreach Partnerships & Initiatives	11
C.	Marketing and Communication Initiatives	19
D.	Coordination of Science and Management Needs	22
E.	Regional Restoration Initiatives and Projects	29
F.	Delaware Estuary Science and Environmental Summit	33
G.	ADDENDUM - Schuylkill CleanSweep Application	34
H.	ADDENDUM - Trash Free Waters	36
II.	DELAWARE ESTUARY NATIONAL ESTUARY PROGRAM (NEP) FY20 WORK PLAN	39
III.	DELAWARE ESTUARY FY20 NEP WORK PLAN SUMMARY TABLE	41
IV.	DELAWARE ESTUARY FY20 BUDGET AND STAFF	45
A.	Proposed PDE Work Plan Expenditures, Including Match	45
B.	FY20 Non-Federal Match Breakdown – Primary Partner Activities	46
C.	NEP Staff and Responsibilities	49
V.	PROPOSED NEW AND ONGOING PROJECTS FOR FY20	50
A.	Program Office Services	50
B.	Education & Outreach Partnerships & Initiatives	57
C.	Marketing and Communication Initiatives	64
D.	Coordination of Science and Management Needs	68
E.	Regional Restoration Initiatives and Projects	75
F.	Delaware Estuary Science and Environmental Summit	81
G.	ADDENDUM – Urban Waters Ambassador.....	83
VI.	AREAS OF SPECIAL INTEREST FY20	85
A.	Activities Supporting Climate Resilience	86
B.	Activities Involving Nutrient Management and Control	87
C.	Nutrient Pollution Reduction Supporting Activities	88
VII.	APPENDIX	
	APPENDIX I - FY 2020 DELEP WORK PLAN BUDGET DETAIL	89
	APPENDIX II - FY20 NEP DETAILED TRAVEL BUDGET	100
	APPENDIX III - FY18 TRAVEL DETAIL REPORT PRIOR FISCAL YEAR (OCTOBER 1, 2017 - SEPTEMBER 30, 2018)	105
	APPENDIX IV - List of Acronyms that may be used in Travel Reports	
	APPENDIX V – Indirect Rate Agreement	



I. FY19 WORKPLAN SEMI-ANNUAL PROGRESS REPORT (For Work Completed Between OCTOBER 1, 2018 - APRIL 30, 2019)

A. Program Office Services

Program Implementation & Reporting: Planning Administration, Financial Management, Tracking, and Reporting

Project/Activity Name	Program Planning and Administration and Support of the Management Conference (ongoing)
Project/Activity Objective	Provide support to the Management Conference (including the Steering Committee, Estuary Implementation Committee) in implementing the CCMP and PDE's Strategic Plan, overall program coordination, management and direction.
Project/Activity Description	Maintain the engagement and effectiveness of the Management Conference through regular meetings and communication for coordinated implementation of the CCMP, ensuring adherence to NEP requirements, and input that balances the three states' and public and private interests (through joint meetings/leadership with PDE's Board), and promotion of the program at the highest levels (through the Steering Committee, annual NEP meetings, and meetings with federal lawmakers). The focus of Management Conference activity in 2019 will continue to be on the revised CCMP.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Executive Director plans, organizes, holds, participates in and presents at Management Conference meetings and maintains communication between meetings, with the assistance of senior staff members. • Members of the Management Conference attend and actively participate in meetings and on committees/calls in between meetings, as needed.
Accomplishments/Deliverables	
Quarterly meetings of the EIC (some jointly with the Board and STAC) with additional CCMP revision conference calls in between, as needed.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • Held two quarterly meetings of the EIC, both jointly with PDE's Board, on 12/6/18 and 2/22/19. A joint meeting was held with the STAC on 10/24/18. • Held EIC calls focusing on CCMP revision and other CCMP-related topics on 10/11/18, 11/8/18, 1/10/19, 2/14/19, 3/19/19, and 4/11/19.
Leadership of the CCMP revision process, resulting in a revised CCMP.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • PDE contracted PR firm 15 Minutes to issue a media advisory about the CCMP Press Conference that was held on 2/19/19 at Bartram's Garden in Philadelphia. • Several pages devoted to goals in the CCMP were added to the PDE website.
Annual meeting and mid-year	October 1, 2018 - April 30, 2019



call of the Steering Committee.	The Steering Committee had a call on 11/29/18 to review the draft revised CCMP and the final steps on the CCMP revision timeline as well as discuss the public comment period and comments received, plans for CCMP-related activities, including roll out events at the 2019 Science Summit and press event in February, and the program evaluation. Steering Committee members also shared their top 3 priorities and initiatives for the Delaware Estuary for 2019.
Participation in Fall and Winter NEP meetings, with associated federal decision-maker outreach.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE's Executive Director and Restoration Programs Manager represented PDE at the Fall NEP Tech Transfer Conference in San Francisco, CA from 10/3/2018 - 10/6/2019. • PDE's Executive Director, Interim Executive Director, and Senior Science Director participated in the Winter NEP meeting at EPAHQ in Washington, DC 3/12 - 3/14/19 with associated outreach to federal decision-makers, including meetings with the following offices: Reps Smith (DC), Menendez (NJ), Dean (PA), Van Drew (NJ), Boyle (PA), Scanlon (PA), Evans (PA), Kim (NJ), Blunt Rochester (DE) and Sens Booker (NJ), Coons (DE), and Carper (DE).
Participation in meetings, advisory committees, news conferences, and other events to promote the program and advance its goals (20+ per year).	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE held a press conference at Bartram's Garden in Philadelphia in February 2019 to discuss the revised CCMP and its implementation as well as the Freshwater Mussel Recovery Program and plans for building a freshwater mussel production hatchery at Bartram's. • PDE presented about the CCMP at DRBC during a 1-hour lunch and learn on 3/21/19. Members of their staff came to learn more about the CCMP and DELEP. • PDE's Outreach Director and Science Planning Coordinator attended the National Environmental Justice Conference and Training Program in Washington, D.C. from March 13-15, 2019. • PDE's Executive Director and Interim Executive Director participated in a number of meetings/events during this time period to promote the program and advance its goals, including: <ul style="list-style-type: none"> ○ New Jersey Coastal Resilience Summit in West Long Branch, NJ on 10/10/2018 as an invited speaker. ○ Meetings of the Delaware Water Infrastructure Advisory Council on 10/17/18, 12/5/18, 2/6/19, 4/3/19. ○ USFWS Delaware River Basin Restoration Program meeting on 10/25/18 and numerous calls. ○ Water Resources Association of the Delaware River Basin Fall Conference on 11/1/2018 in Bordentown, NJ. ○ CZCPA Regulatory Advisory Committee meetings on 11/7/18, 12/11/18, 1/22/19 and public meetings on



	<p>2/25 - 2/27/19 in Claymont, Delaware City, and Wilmington, DE.</p> <ul style="list-style-type: none"> ○ SAN Annual Meeting on 11/9/18 in Reading, PA. ○ DRWI Leadership Meeting on 11/14 - 11/15/19 in Lahaska, PA and Winter Gathering on 2/12 - 2/13/19 in Macungie, PA. ○ NJ Climate Adaptation Alliance Advisory Committee Meeting on 11/29/18 in New Brunswick, NJ. ○ Delaware Clean Water Alliance Meeting on 1/15/19 in Odessa, DE. ○ Initiative Stewards calls on 12/14/18, 1/18/19, 1/31/19 and meeting on 2/11/19 in Macungie, PA. ○ NEP Strategic Doing Workshop on 2/15/19 in Rehoboth Beach, DE.
Complete the five-year NEP Program Evaluation Process.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • The Program Evaluation was held on 4/30 - 5/2 and was successfully completed on 5/2. On 4/30, attendees visited Philadelphia for tours of the Fairmount Water Works and their freshwater mussel demonstration hatchery, as well as an overview of PDE's on-the-ground programming. On 5/1, attendees spent their morning in Camden, NJ, touring the Camden County Municipal Utilities Authority, Phoenix Park, and a PDE living shoreline project site. They then headed to PDE's offices in Wilmington, DE for an EPA NEP report out and presentations from Estuary Implementation Committee members, climate resilience initiatives in the Estuary, and wetlands research at the Delaware National Estuarine Research Reserve. 5/2 included a presentation and tour of PDE's shell recycling program, a tour of PDE's Annex, and a storm drain street art installation in Wilmington, DE before the evaluation team departed. • PDE was given a "pass" rating.
Other Non-NEP Funded	<ul style="list-style-type: none"> • PDE finalized the layout and design of the revised CCMP with approved language. • PDE-branded flash drives containing the revised CCMP and 2017 TREB, along with past Summit Proceedings, were given out to attendees of the Science and Environmental Summit. Posters and handouts were also created for display and distribution at the Summit. Funding was provided by the William Penn Foundation. • PDE worked with the EIC to develop a public-friendly CCMP summarizing brochure. 5,000 copies were printed, which are being distributed to DELEP partners to provide to their staff and event attendees. They are also being handed out during PDE



	<p>outreach events. Funding was provided by the William Penn Foundation.</p> <ul style="list-style-type: none"> PDE held a CCMP Bingo session on the first night of the Science and Environmental Summit. After every fifth ball called, one of the CCMP strategies was read to participants. Funding was provided by the William Penn Foundation.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019 FY18: \$2,692 FY19: \$45,172</p>
Expected Long-term Outcomes	<p>Recently completed projects and current, ongoing projects are anticipated to have positive long-term impacts, including:</p> <ul style="list-style-type: none"> Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3).
External Constraints	<p>October 1, 2018 - April 30, 2019 PDE transitioned from Jennifer Adkins as Executive Director to Kathy Klein as Interim Executive Director. This took effect on 3/11. It has been a smooth transition.</p>

Project/Activity Name	Financial and Operations Management in Support of the Management Conference and Organization (ongoing)
Project/Activity Objective	Provide support to the Management Conference and PDE Board of Directors for exercising financial oversight and ensuring operational support for activities to implement the CCMP and PDE's Strategic Plan.
Project/Activity Description	Provide sound financial information and management needed to support decision-making and oversight, meet NEP grant financial and administrative requirements, and provide a stable operating platform for PDE, including budgeting, accounting, audits, financial reporting, and IT system operations and maintenance.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Deputy Executive Director will lead the annual budgeting process and ensure sound financial management, accountability, and reporting, and sound operations of program office systems. PDE's Board is responsible for fiscal management oversight, including reviewing and discussing quarterly financial reports and audit results. The Estuary Implementation Committee reviews and approves PDE's annual NEP Work Plan, including the NEP budget.
Accomplishments/Deliverables	
Quarterly financial reports to the Board.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> PDE's DED began working with accounting services contractor



	Cover & Rossiter in March 2019 to prepare the annual audited financial statements and financial reports. A summary of the financial reports was presented to PDE's Board on 12/6/18 and 2/22/19. The final audit is expected to be completed by 6/14/19 and presented to the Board at the 8/29/19 meeting.
PDE annual budget approved by the Board.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The DED implemented the budgeting process and compiled the operating budget for the 2019 calendar year, which was presented to the Finance Committee 11/29/18, and approved by PDE's Board on 12/6/18.
Annual Audited Financial Statements.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE's auditors tested transactional information and allocation methodologies, reviewed internal controls, and conducted preventative fraud interviews. The final audit and 990 will be available for the Finance Committee meeting no later than 6/14/19.
Annual Form 990 remitted to the IRS.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The final audit and 990 is anticipated to be ready to remit to the IRS by 6/14/19.
IT systems operation and maintenance.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> During this period, PDE purchased 2 new desktops to replace 2 outdated failed/failing PC/laptops. PDE went through an evaluation process to choose a new IT provider. Requests for proposal were sent out to local providers and qualified firms were interviewed. PDE contracted with TechSolutions in December 2018 for ongoing tech support. PDE upgraded their firewall and the equipment that enables efficient backup to the cloud. ShareSync was replaced with two new remote access tools in March 2019. These are VPN on all PDE owned laptops and Anchor for employee owned equipment. PDE's timekeeping system was converted from MC2 to Paychex, which automated the payroll system.
Monthly Labor Reports to US Department of Labor and other jurisdictional reports as required.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE's requirement to the Department of Labor ended in September 2018.
Other Non-NEP Funded	<ul style="list-style-type: none"> None to report.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$2,217 FY19: \$33,105
Expected Long-term Outcomes	Recently completed projects and current, ongoing projects are anticipated to have positive long-term impacts, including:



	<ul style="list-style-type: none"> Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3)
External Constraints	October 1, 2018 - April 30, 2019 None to report

Project/Activity Name	Grant Writing and Management to Support CCMP and Strategic Plan Implementation (ongoing)
Project/Activity Objective	Secure and manage grant funding to support CCMP and Strategic Planning implementation by PDE and its partners.
Project/Activity Description	Research, prepare, and submit grant proposals for funding to support PDE work and leverage NEP funds. Prepare and manage NEP and other grants in accordance with work plans and grant administrative and programmatic conditions, providing reports as needed.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Coordinator of Grants has primary responsibility for writing, submitting, managing, and reporting on grants. PDE applies to a variety of grant sources, including foundations, corporations, state agencies, and federal agencies (including most of our Management Conference partner agencies.)
Accomplishments/Deliverables	
30 - 40 proposals submitted, working toward a 70% acceptance rate.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> 20 grant proposals and LOIs were submitted to various state, federal, corporate and private foundation funding sources. The total amount of funding requests totaled \$1,100,085.
\$1,474,500 secured in federal, state and local government grant funding (including NEP funds) and \$250,000 in Foundation grants.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> \$88,688 in funding was approved during this reporting time period. This includes funding from DNEER, NJDEP, Greenwatch Institute, Geraldine Dodge Foundation, Wefare Foundation and the Laffey-McHugh Foundation. Funding decision on \$1,012,197 in proposal remain under review.
Coordinate development and submission of Work Plan and Semi-Annual Progress Report.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE began working on the drafting of the annual Work Plan and Progress Report. PDE shared information on the plans for the FY20 Workplan with the EIC for feedback. PDE senior management worked with the Coordinator of Grants to update Work Plan budgets and deliverables as needed to reflect plans for FY20.



	<ul style="list-style-type: none"> The Work Plan was updated and revised to reflect the recently completed revised CCMP to ensure alignment with the CCMP Goals and Objectives.
Other Non-NEP Funded	<ul style="list-style-type: none"> Additional funding to support grant writing is provided by DNREC. However, a portion of PDE's grant writing and grant administration costs continue to be unfunded, and thus must be covered through PDE's general operating budget.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$12,604 FY19: \$12,600
Expected Long-term Outcomes	Financial resources for PDE and for the Estuary to enable a greater impact on improving the health of the Estuary (Strategic Plan Goal 4).
External Constraints	October 1, 2018 - April 30, 2019 PDE's Grants Coordinator retired in September 2018 and the position remained vacant until November 1, 2018 when PDE's current Coordinator of Grants, Karen Forst, returned to the organization. She has spent several months getting refamiliarized with PDE's grants and funders, as well as working to reduce the backlog created during the transition period. Currently, PDE is on track to meet or exceed the number of proposals submitted in the previous year. A new Grant and Events Administrator position was also created to assist with grant administration, tracking and reporting.

Project/Activity Name	PDE Contact Database Management (ongoing)
Project/Activity Objective	Maintain and grow PDE's database of more than 25,000 contacts for mail and email distribution of information to stakeholders.
Project/Activity Description	PDE performs the regular maintenance needed to keep existing contact information current, adds new contacts to the database, and keeps all contact information in one place that is easily accessible and searchable for use in a variety of outreach activities, including the distribution of the <i>Estuary News</i> newsletter.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Development Manager is the administrator of the PDE contact database.
Accomplishments/Deliverables	
Generate quarterly mailing/email lists for (and subsequent updates from)	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> Quarterly mailing/email lists were generated for <i>Estuary News</i> distribution including a Fall newsletter that was emailed on



<i>Estuary News</i> distribution.	11/5/2018 and a Winter newsletter that was mailed and emailed the week of 3/25/19.
Increase the number of email addresses captured (as PDE moves away from paper to digital formats).	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> 860 new contacts and 138 leads with email addresses were added to PDE's database during this timeframe.
Add 750+ new contacts per year.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> 860 new contacts were added to PDE's database during this timeframe.
Other Non-NEP Funded	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The contact database was used to generate dozens of email blasts in late 2018 and early 2019 promoting PDE projects and programs. PDE hosted several events to promote and raise the profile of the Estuary and its resources as well as to bring in new supporters and educate them about bivalves, living shorelines and other programs. On 10/17/18, PDE held a young professional's happy hour event at the Freshwater Mussel Propagation Demonstration Hatchery at Fairmount Water Works in Philadelphia. On 3/21/19, PDE held a Mussel Madness Kick-Off Party at Lincoln Financial Field in Philadelphia.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$3,404 FY19: \$2,374
Expected Long-term Outcomes	Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3).
External Constraints	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> Salesforce is provided to PDE free of charge by the Salesforce Foundation. However, like most technology, use of the Salesforce CRM requires training and the system also requires ongoing maintenance. PDE occasionally utilizes outside contractors to assist with certain facets of maintenance management and updating. Salesforce is in the process of transitioning to an upgraded platform, which will require PDE staff to devote significant time in Spring and Summer 2019.



B. Education & Outreach Partnerships & Initiatives

Project/Activity Name	Holding and Participating in Public Events and Festivals Across the Delaware Estuary (e.g., Coast Days, Philly Science Festival) (ongoing)
Project/Activity Objective	Raise awareness and build affinity and stewardship for the resources of the Estuary.
Project/Activity Description	PDE receives dozens of requests from partners to participate in local and regional water and/or environmentally-themed festivals and events each year. PDE evaluates public event participation requests and selects those that will result in reaching a large number of people in key geographic locations, allowing PDE to customize a targeted message that will resonate with the event's theme, location and anticipated audience. PDE also cultivates new and existing partnerships to directly deliver and/or sponsor events (and other outreach programs). These events provide an initial entry for PDE to engage new people in its work across the Estuary Region.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Outreach Program Coordinator identifies, evaluates, selects and coordinates other PDE staff and volunteers as needed to participate in public events, under the direction of PDE's Director of Outreach.
Accomplishments/Deliverables	
Participation in 15 or more events, including 1-2 PDE-organized events (including PA Coast Day, Wilmington Earth Day festival and sponsorship of DE Coast Day).	<p>October 1, 2018 - April 30, 2019</p> <p>During this period, PDE participated in the following events:</p> <ul style="list-style-type: none"> Delaware Coast Day, hosted by Delaware Sea Grant College Program, University of Delaware, 10/7/18. Philadelphia Fall Nature Fest, hosted by John Heinz National Wildlife Refuge, 10/13/19. Leipsic Oyster Festival, hosted by the Town of Leipsic, 10/13/18 Oysterfest in Bear (DE), hosted by Grain H2O, 1/26/19 (supported by other funding sources). Cumberland County Eagle Fest in Mauricetown (NJ), hosted by Cumberland County, 2/2/19. Wilmington Earth Day in Wilmington (DE), coordinated by PDE and sponsored by the City of Wilmington on 4/17/19 (supported by other funding sources). Philadelphia Airport Earth Day, 4/18/2019. Kennett Eco Fair in Kennett Square (PA), hosted by Exelon, 4/18/19 (supported by other funding sources - see below). Shad Festival in Lambertville (NJ), hosted by the Delaware River Towns, 4/27/19. Ag Day in Newark (DE), hosted by the University of Delaware on 4/27/19



<p>Exposure to 38,000 people via events.</p>	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • Estimated attendance and interactions at events during this period were as follows: <ul style="list-style-type: none"> ○ Delaware Coast Day - 5,000 attendees, 340 interactions ○ Philadelphia Fall Nature Fest - 800 attendees, 50 interactions ○ Leipsic Oyster Festival - unknown number of attendees, 80 interactions ○ Oysterfest - unknown number of attendees, 22 interactions ○ Cumberland County Eagle Fest - 500 attendees, 15 interactions ○ Wilmington Earth and Arbor Day - 2,000 attendees, 2,000 interactions ○ Philadelphia Airport Earth Day - unknown number of attendees, 20 interactions ○ Kennett Eco Fair - unknown number of attendees, 60 interactions ○ Shad Festival - 40,000 attendees, 19 interactions ○ Ag Day - 2,000 attendees, 200 interactions • PDE has continued its use of a clicker system to count interactions with attendees at events. These counts typically included actual conversations with participants and/or literature giveaways. PDE continued to try to focus on high impact events.
<p>Other Non-NEP Funded</p>	<ul style="list-style-type: none"> • PDE worked with the City of Wilmington to hold the Earth Day Festival in Rodney Square on 4/17/19. The event was a success with 35 exhibitors, food vendors, and an estimated 2,000 children and adults in attendance. WJBR performed live radio broadcasts, a proclamation by the Mayor was made, and an estimated 650 plants were given away. Shoprite/Kenney Foundation were sponsors and provided fruit and snacks. Other sponsors included Davey Tree, North Creek Nurseries, Pinelands Nurseries, and Mt. Cuba Center. Davey Tree performed tree climbing demonstrations while Tropo, the Air Quality Partnership of Delaware's clean air mascot, engaged the crowd. The second year of PDE's Clean Waterways Wilmington student art contest brought in over 250 entries from seven schools and community centers. Twelve contest winners and their classmates were invited to the Wilmington Earth and Arbor Day celebration to accept their awards and enjoy the event. 9 were able to attend the event along with their classmates and chaperones. • Plans for PA Coast Day, scheduled for 9/7/19 at Penn's Landing, are underway, thanks to funding from the Philadelphia Water



	<p>Department and Pennsylvania Coastal Zone Management Program. For this year's PA Coast Day, PDE has partnered across the Delaware River with the Alliance for Watershed Education (AWE), Camden County, and Coopers Ferry Partnership's River Days event on the Camden Waterfront. This collaboration, led by PDE, AWE, and Center for Aquatic Sciences (CAS), will offer free ferry rides to participants and different experiences on each side of the river. Keeping with missions of many organizations involved, this joint event will focus on education about the Delaware River and provide free off and on-the-water activities for families. For outreach and marketing purposes, these events will fall under the name "Delaware River Festival" while keeping individual identities to serve local communities.</p> <ul style="list-style-type: none"> • PDE also tabled at Exelon's Kennett Eco Fair for their employees on 4/18/19. • PDE tabled at Grain H2O's Oysterfest on 1/26.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019 FY18: \$24,735 FY19: \$5,028</p>
Expected Long-term Outcomes	<p>Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries (Strategic Plan Goal 2).</p>
External Constraints	<p>October 1, 2018 - April 30, 2019 Nothing to note</p>

Project/Activity Name	Cultivate and Promote New and Existing Educational Partnerships, Programs, and Materials to Address CCMP Actions (ongoing)
Project/Activity Objective	Increase stewardship and community resilience; decrease non-point source pollution; advance CCMP implementation among local partners
Project/Activity Description	PDE Education & Outreach staff will continue to work with partners to develop a wide range of programs, activities, and materials designed to reach, engage, and inform the public about the Delaware Estuary, and engage them in implementing actions in the CCMP -- particularly preventing non-point source pollution, holding aquatic debris removal events, and increasing community resilience and stewardship of key habitats and living resources. PDE participates in a variety of local and sub-watershed partnerships including the South Jersey Bayshore Coalition, Christina Basin Clean



	Water Partnership/Task Force, Camden Collaborative Initiative, Urban Waters Federal Partnership, and Schuylkill Action Network to promote and provide local stakeholder input into PDE's programs and projects. The programs and educational activities developed and/or promoted through these partnerships vary from cleanups to workshops to community planning. NEP funds are used to develop these partnerships and programs, which often lead to more extensive initiatives funded through other sources and partners.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Director of Outreach is responsible for cultivating new and existing partnerships for educational initiatives to address CCMP action items and provide oversight and guidance to PDE's outreach staff. • PDE's Outreach Program Specialist is responsible for coordinating programs for teachers, classrooms, and volunteers. • PDE's Outreach staff and Watershed Planning Coordinator utilize their participation in local and sub-watershed partnerships to promote and provide local stakeholder input into PDE's programs and projects, as well as identify new project opportunities. • Dozens of partner organizations in these (and other) sub-watershed collaborations, provide PDE with local input on programs/projects, and partner with PDE to deliver projects and programs locally. (In 2019, PDE will continue to seek new sources of funding for outreach and volunteerism as part of the shell recycling program. See Regional Restoration section of Work Plan).
Accomplishments/Deliverables	
Develop/maintain partnerships with agencies/organizations for conducting educational outreach campaigns in 2019 and beyond with additional leveraged resources.	<p>October 1, 2018 - April 30, 2019</p> <p>During this timeframe, PDE's Outreach staff continued to actively maintain and grow strong relationships with agency partners that leverage additional outreach support, including:</p> <ul style="list-style-type: none"> • EPA Regions 2 & 3, for working together on the Urban Waters Federal Partnership Climate Resilience CoP and Climate Outreach Roundtable. • DNREC for implementing the Christina Cleanup, working together on the Christina Basin Task Force. • City of Wilmington for the Earth Day Celebration and non-point source pollution prevention outreach and the Clean Waterways Wilmington student art contest. • Working with non-profit partners in sub-watershed collaborations/committees like the Schuylkill Action Network, Camden Collaborative Initiative, Delaware Resilient and Sustainable Communities League, and Christina Basin Task Force,



	<p>from which new partnerships and projects are constantly evolving and being developed to suit current needs.</p> <ul style="list-style-type: none"> • PDE continues to coordinate the Schuylkill Action Network (SAN), a collaborative network of environmental organizations and agencies. Through the SAN, partners are engaged in PDE's educational outreach campaigns. • Working with NJ DEP, NJ Clean Communities, Americorps, and more on the South Jersey Scrub.
Conduct outreach to classrooms (or referrals, where possible) and to teacher organizations to develop and strengthen educational partnerships, including participation in PDE's annual Teacher Workshops series, tracking results (participation, evaluation).	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE's annual Delaware Estuary Watershed Teacher Workshop series is set for 7/15 - 7/17/18. • PDE staff reviewed Mussels in the Classroom curriculum, provided by Fairmount Water Works staff.
Hold and promote activities to engage citizen scientists and volunteers, such as freshwater mussel workshops, cleanups, and shell recycling/bagging, tracking results (participation, data).	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE hosted and promoted the Christina River Cleanup site at the Wilmington Riverfront 4/6/19, working with the Christina Conservancy and Cleanup Committee. 41 volunteers participated at the Riverfront site, collecting over 1,200 pounds of man-made debris. (PDE's work on this cleanup is largely funded by DNREC.) • PDE coordinates the Schuylkill Scrub, an annual cleanup initiative held 3/1 - 5/31 in the Schuylkill Watershed. PDE partners with Keep Pennsylvania Beautiful, which is part of the Great American Cleanup of PA, the state-wide effort. The number of cleanups, volunteers, and amount/type of trash collected is tracked through this partnership. (PDE's work on the Schuylkill Scrub is largely funded by PWD.) • PDE is working with PWD and corporate partners to plan three or more Delaware River cleanups this summer (funded through PWD and other sources.) One cleanup was held on 3/16 in partnership with United by Blue and others. • PDE worked with partners including NJ Clean Communities to hold the South Jersey Scrub, modeled after the Schuylkill Scrub, to engage volunteers. • The Schuylkill Action Network launched the CleanSweep application in March. It allows users to create and register for cleanup events, report results and photos, and track statistics on amount of litter removed from the Schuylkill River Watershed. • During this period, PDE held 3 shell bagging events, engaging volunteers while bagging 814 bushels of oyster shell.



	<p>A mussel workshop geared towards high school and homeschool students was held on 10/10/18 at Palmyra Cove Nature Park. 7 people attended.</p>
<p>Strengthen, expand and track the results of subwatershed collaborations to:</p> <ul style="list-style-type: none"> • Advance and promote water quality improvements in major water resource areas like the Schuylkill River Watershed and Kirkwood-Cohansey (SAN, DRWI clusters) • Advance and promote climate change adaptation and environmental justice utilizing the Urban Waters Federal Partnership (Climate Change Roundtable / CoP, CUSP, RASCL). 	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE continued to plan for the Urban Waters Federal Partnership through coordination of the Climate Outreach Roundtable/UWFP climate resilience Communities of Practice. • During this period, PDE staff strengthened and expanded collaborations by attending one meeting for the Camden Collaborative Initiative, 27 meetings and events for the Delaware Resilient and Sustainable Communities League, and one meetings for the New Jersey Climate Resilience Collaborative. • PDE staff enhanced existing collaborations with Estuary partners within the Delaware River Watershed Initiative through planning and project implementation in the Schuylkill Highlands, Middle Schuylkill, and Kirkwood Cohansey Cluster geographies, thanks to funding from the William Penn Foundation. • PDE staff continued to enhance and grow relationships with partners in the Schuylkill Action Network, using funding from PWD.
<p>Other Non-NEP Funded</p>	<ul style="list-style-type: none"> • PDE maintains a strong partnership with PWD on the demonstration hatchery to teach FWW visitors about freshwater mussels and their importance for water quality. The hatchery is a functional hatchery used to propagate mussels, research new ideas, and build support for future propagation. • PDE continues to work with PWD to promote use of their new storm drain marking app as a training tool for storm drain marker installations in Philadelphia. PDE partners with three businesses in Philadelphia to serve as distribution sites for the markers, is training others on the use of the app, and assisting with the organization of several neighborhood kick-off marking events. • PDE is working to partner with environmental centers in Philadelphia to distribute storm drain marking supplies and host dog waste education events. • PDE staff worked in partnership with the CCMUA to develop educational signage to be displayed in the CCMUA lobby. The signs cover topics including the wastewater treatment process, freshwater mussels, and living shorelines, and makes the connection of how humans and nature are working together to clean water. • During this period, the Independence Seaport Museum



	<p>continued to monitor mussels that we provided them previously. This will help to grow our program while giving them programming.</p> <ul style="list-style-type: none"> • PDE maintains partnerships through regular mussel and science programs at Longwood Gardens and Winterthur Museum. PDE also continues to monitor mussels at both of these locations.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019</p> <p>FY18: \$51,707</p> <p>FY19: \$23,945</p>
Expected Long-term Outcomes	<ul style="list-style-type: none"> • Encourage targeted behavior changes that can reduce pollution entering local waterways and improve community resilience (Strategic Plan Goal 2. Objective 2.2). • Increase the preparedness of coastal communities to adapt to climate change and/or sea level rise (Strategic Plan Goal 2. Objective 2.1). • Facilitate collaborative problem solving on key issues and in key areas and sub watersheds (Strategic Plan Goal 2. Objective 2.4). • Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal 1.Objective 1.3).
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE has received funding from the Welfare Foundation to support shell recycling, however overall funding constraints have halted expansion and the creation of new partnerships at the Wilmington, DE shell recycling location.



Project/Activity Name	Publications, Website Downloads, and Storm Drain Marking Supplies (ongoing)
Project/Activity Objective	Provide the public with easy access to information and resources about the Delaware Estuary.
Project/Activity Description	PDE provides the public with information and resources via a variety of means including, but not limited to, increasing the use of its website for downloading publications and other materials. PDE's website is fully smart phone and tablet accessible, allowing people to access and download information, both from PCs and mobile devices. PDE also uses a variety of social media formats to reach a broader audience. These outlets include Facebook, Instagram, Twitter, Flickr, LinkedIn, and YouTube. PDE has increased its focus on social media promotion. NEP funding provides support for these services and, as needed, to produce new or revised publications. (Staff time associated with this service is also NEP-funded and is accounted for in the previous section.)
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Education and Outreach staff share responsibility for responding to requests for information, producing new materials (usually in concert with new educational programs/initiatives), making them available on the web, and tracking materials distributed and downloaded.
Accomplishments/Deliverables	
More than 4,500 web downloads of materials.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> There were 2,113 total downloads during this period.
One or more new publications.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> Issues of <i>Estuary News</i> were published and distributed in November 2018 and March 2018.
More than 145,000 pieces of literature/materials distributed.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE distributed more than 100,000 pieces of literature during this time frame.
10 social media posts per week	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> During this period, there were 682 social media posts; an average of 22 social media posts/week.
Other Non-NEP Funded	<ul style="list-style-type: none"> The SAN published 15 Year and 2018 Progress Reports, both funded by PWD. They also published a brochure for Schuylkill Action Students, funded by the William Penn Foundation. During this time frame, PDE published or had the following scientific publications accepted: <ul style="list-style-type: none"> Morris RL, Bilkovic DM, Boswell MK, Moody, J. et al. The application of oyster reefs in shoreline protection: Are we over-engineering for an ecosystem engineer? J Appl



	<p>Ecol. 2019;00:1-9. https://doi.org/10.1111/1365-2664.13390 (published)</p> <ul style="list-style-type: none"> ○ Lathrop, R.; Moody, J.; Sacatelli, R.; Haaf, L.; Reilly, E.; Maxwell-Doyle, M.; Kreeger, D., and Kennish, M.J., 2019. Validating regional-scale modeling of salt-marsh change for place-based resiliency planning. Journal of Coastal Research, 00(0), 000-000. Coconut Creek (Florida), ISSN 0749-0208. (accepted) ○ Kreeger, D.A., C. M. Gatenby, and P.W. Bergstrom. 2019. Restoration potential of several native species of bivalve molluscs for water quality improvement in mid-Atlantic watersheds. Journal of Shellfish Research; 37:5, 1121-1157. (accepted)
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019 FY18: captured in previous section FY19: captured in previous section</p>
Expected Long-term Outcomes	Individuals, communities, and key stakeholders engaged in improving the health of the Estuary and its tributaries (Strategic Plan Goal 2).
External Constraints	<p>October 1, 2018 - April 30, 2019 Nothing to note.</p>

C. Marketing & Communication Initiatives

Project/Activity Name	PDE Website Operation & Maintenance (ongoing)
Project/Activity Objective	To disseminate information on PDE programs, projects and resources in the Estuary via the web.
Project/Activity Description	DelawareEstuary.org has become a critical tool for PDE communication to stakeholders and partners. In 2017, the PDE/DELEP website had approximately 89,000 visits and unique visitors to the site. This main PDE/DELEP website is used to transmit critical information, provide valuable educational resources to key audiences, and relay the latest in project information to partners and interested stakeholders, including information and links to ecotourism opportunities. NEP funds support the staff time and basic web hosting required to keep the website functioning and its content fresh and robust. In 2019, some of this effort will be directed to refining and maintaining the new website and incorporating new branding guidelines into outreach materials.
Implementers, Partners, and	<ul style="list-style-type: none"> • PDE's Marketing & Communications Manager is primarily



Their Role(s)	responsible for maintaining website operations and content.
Accomplishments/Deliverables	
www.DelawareEstuary.org maintained with high visitorship (over 100,000 visits) and downloads (over 10,000).	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> There were 26,325 website visits, 140,007 views, and 2,113 total downloads on DelawareEstuary.org during this time frame.
Other Non-NEP Funded	<ul style="list-style-type: none"> PDE continues to manage the Schuylkill Action Network website, funded by PWD, which was launched to improve access to resources and information about the Schuylkill River Watershed, as well as to generate greater public affinity for the river and its tributaries. PDE manages the Schuylkill Scrub website, which contains information about upcoming cleanups as well as statistics from previous events. RASCL unveiled their new website in October. It serves as a one-stop resource for everything RASCL including events, databases, and additional resources.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$4,280 FY19: \$7,752
Expected Long-term Outcomes	<ul style="list-style-type: none"> Build affinity for the tidal Delaware River and Bay and its major tributaries (Strategic Plan Goal 2. Objective 2.3). Build PDE's and the Estuary's brand locally, regionally, and nationally (Strategic Plan Goal 3. Objective 3.3).
External Constraints	October 1, 2018 - April 30, 2019 Nothing to note.

Project/Activity Name	Media Outreach and "Estuary News" Newsletter (ongoing, with new issues/content quarterly)
Project/Activity Objective	To disseminate information on PDE/DELEP programs, projects and resources in the Estuary in print, via email, and through the press.
Project/Activity Description	NEP funding support will enable PDE to develop/maintain a tri-state watershed relationship with media and employ a publicity strategy that focuses on present projects/activities and includes news conferences, packets, and releases. It will also be used to produce and distribute the PDE newsletter, <i>Estuary News</i> , an important outreach tool that reaches 24,000 people in a large and diverse estuary watershed. Winter and Summer print issues are mailed to roughly 21,000 subscribers and an additional 2,700 are made



	<p>available to readers via distribution points. Spring, Fall, Winter and Summer E-news issues are emailed to 6,930 people. Print issues are sent to points of distribution such as the Smyrna Rest Stop, Children's Beach House, Cape May Lewes Ferry, and Independence Seaport Museum where they reach an even broader audience. Newsletters are also distributed at meetings, conferences, and events attended by PDE staff throughout the year. Additional email blasts between newsletters are used to promote specific PDE projects and events.</p>
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Marketing & Communications Manager is primarily responsible for planning, collecting, and editing content as well as overseeing production of the newsletter and conducting media outreach, with input and oversight from the PDE Executive Director, Director of Outreach and other staff as needed. • A variety of partners and experts from around the Estuary region serve as authors for <i>Estuary News</i> articles.
Accomplishments/Deliverables	
Two print issues and four e-news issues of <i>Estuary News</i> produced and distributed by mail to 23,400 and emailed to 6,930 people.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE emailed the winter 2017 issue of <i>Estuary News</i> to 7,826 recipients on 3/25/19, and mailed 22,296 copies to subscribers and distribution points. • A fall e-newsletter was emailed on 11/5/18 to 7,526 individuals.
Print issues are distributed through placement at 8-12 locations throughout the estuary, and at estuary events throughout the year.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE's distribution points displayed approximately 1300-1500 copies of <i>Estuary News</i>. During winter, this included 7 locations displaying 50 or more copies and 11 locations displaying 25 or less (those were to schools and to offices). The largest examples include Independence Seaport Museum, Fairmount Water Works, and the Independence Visitor Center in Philadelphia. There is also The Smyrna Rest Stop in Smyrna, Delaware. All of these stock 200-300 issues twice per year.
4-6 additional email blasts promoting Estuary events/resources.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE used Vertical Response to send over 20 mass emails promoting events and resources during this period including: <ul style="list-style-type: none"> ○ Wilmington Earth Day ○ Volunteer Shell Bagging ○ Delaware Estuary Watershed Teacher Workshops ○ Delaware Estuary Science & Environmental Summit • In addition to PDE's email blasts, the SAN utilizes its own listserv through its website, SchuylkillWaters.org. PDE uses email blasts to engage over 500 SAN members through the seven workgroups



	<p>that focus on various issues impacting the Schuylkill River Watershed.</p> <ul style="list-style-type: none"> RASCL also utilizes a listserv to engage their database of over 500 members through email blasts.
100+ media hits.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> There were over 90 media hits mentioning PDE or the Delaware Estuary during this time period.
1-2 press events per year.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> PDE hosted a press event on 2/19/19 at Bartram's Garden in Philadelphia to discuss the revised CCMP and its implementation and announced plans to build a freshwater hatchery. Press were invited to numerous PDE events, including the Delaware Estuary Science and Environmental Summit, the South Jersey Scrub Kickoff, and the Wilmington Earth & Arbor Day Celebration. PDE gave a three-minute interview with Comcast Newsmakers on 4/26/18. We also were interviewed on the radio for the South Jersey Scrub in April. In January, PDE's Executive Director was interviewed on WDDE 91.1 FM regarding the Science and Environmental Summit. PDE's Senior Science Director gave an interview to the same station in February regarding plans for the freshwater mussel hatchery.
Other Non-NEP Funded	<ul style="list-style-type: none"> PDE created a quarterly "Perennial Pages" newsletter to disseminate information about rain garden and other habitat maintenance. It was sent out in January and April.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019</p> <p>FY18: \$12,265</p> <p>FY19: \$33,695</p>
Expected Long-term Outcomes	<ul style="list-style-type: none"> Build affinity for the tidal Delaware River and Bay and its major tributaries (Strategic Plan Goal 2. Objective 2.3). Build PDE and DELEP's and the Estuary's brand locally, regionally, and nationally (Strategic Plan Goal 3. Objective 3.3).
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <p>Nothing to note.</p>

D. Coordination of Science and Management Needs

Project/Activity Name	Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management (ongoing)
Project/Activity Objective	Sustain the STAC, regular science conferences/workshops, and other scientific partnerships to facilitate regional collaborations/sharing and to provide technical support and input to



	the Management Conference and PDE/DELEP's projects and programs
Project/Activity Description	<p>The STAC is the principal technical workgroup for DELEP and has been operational since 2006. The STAC reports to the EIC and provides peer review and support for all NEP technical products, while also servicing the wider science and management community by drafting periodic scientific briefs on topics of broad interest. Members of the STAC and subgroups participate voluntarily, and their contributions are an important source of in-kind support for PDE's programs. A critical role played by PDE's Senior Science Director is utilizing relationships with STAC members and others in the scientific community to build partnerships for developing and carrying out successful science-based activities for improving the Estuary, and promoting the work of PDE and its partners. Such efforts have led to PDE's most successful projects that are built and advanced through a combination of ongoing meetings/communications with key partners, participation in advisory committees and workgroups, presentations at meetings, events, and conferences to engage new people and support, and the development of new project/program proposals. The STAC and core science staff host the biennial Delaware Estuary Science and Environmental Summit that will be held in January 2019. Additional areas of focus for advancing science programs/partnerships in 2019 will be further development of the concept of a mussel production hatchery in Philadelphia, developing and testing new planning and monitoring tools for post-Sandy coastal preparedness projects, and engaging students and interns in research to advance the science related to key resources/issues in the Estuary.</p>
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Senior Science Director is primarily responsible for coordinating and utilizing the STAC and other workgroups, identifying emerging scientific needs, and designing and managing science programs and partnerships to fill knowledge gaps, with assistance from other PDE staff as needed. • PDE's Science Programs Manager serves as an alternate for the Senior Science Director on regional technical committees and works to support the operational needs of the STAC, while also coordinating daily staffing and management of PDE's scientific projects. • The STAC Chair (currently Dr. Sue Kilham from Drexel University) leads meetings and works with PDE to set agendas. • STAC members include representatives from DELEP



	<ul style="list-style-type: none"> • s agency partners, as well as elected members from business, industry, academia, and non-profit partners, who attend meetings and contribute expertise and input. • Partners such as the Philadelphia Water Department, Academy of Natural Sciences of Drexel University, Barnegat Bay Partnership, The Nature Conservancy New Jersey Chapter, and Rutgers University Haskin Shellfish Laboratory (along with many other current and new partners) routinely work with PDE staff to address core scientific priorities of the NEP, such as monitoring, research and restoration of key resources (e.g., shellfish, coastal wetlands) and enhancing ecosystem services that benefit people (e.g., coastal preparedness, water quality).
Accomplishments/Deliverables	
At least three STAC meetings per year, including one with the EIC to exchange key information and discuss emerging needs/opportunities; and one with the MACC to review/update monitoring plans for the Estuary.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • 10/24/18 STAC and EIC joint meeting agenda included updating the group on 2018 NEPORT results and reviewing the ongoing revision of the CCMP. • 4/1/19 STAC meeting agenda included a Delaware Estuary Science and Environmental Summit wrap up, an update regarding the completion of the revised CCMP, and talk about hosting a monitoring workshop. • An annual joint meeting of the STAC and MACC will be held on 6/17/19.
Quarterly STAC reports at EIC meetings, including one on monitoring plans/activities and the occasional white paper / brief / presentation on a key topic.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • STAC activities were conveyed to the EIC at the 10/24/18, 12/6/18, and 2/22/19 EIC meetings.
Execute the 2019 Summit, with STAC and partner input.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • The Delaware Estuary Science and Environmental Summit was held form 1/27/19 - 1/30/19 in Cape May, NJ. 12 STAC members moderated and 9 members presented./
Maintain/grow four or more scientific partnerships resulting in new projects/proposals developed in 2019.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • PDE partnered with New Jersey Sea Grant on a new project proposal to National Sea Grant for freshwater mussel aquaculture to support freshwater mussel restoration in the Estuary • PDE partnered with the Academy of Natural Sciences to prepare and submit an LOI to PA Sea Grant for freshwater mussel habitat suitability research • PDE partnered with the Fairmount Water Works to prepare and submit a proposal to bring the science behind the FWW hatchery to teachers throughout Philadelphia



More than 15 scientific presentations (seminars, keynotes, conferences) by the Senior Science Director on priority topics and other scientific findings.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The Senior Science Director gave the following presentations: <ul style="list-style-type: none"> Water Resources Association of the Delaware River Basin Fall Conference on 11/1/18. Philadelphia Water Department on 11/29/18. PDE Board in December 2018. Freshwater Mussel Workgroup on 2/19/19. (PDE not only presented at this meeting, but PDE's Senior Science Director chaired the meeting. This represents an important milestone for PDE and MuCWI.) Philadelphia Shell Club Summit on 2/21/19. PA Watershed Conference on 2/24/19. Science on Tap on 2/28/19. Freshwater Mollusk Conservation Society on 3/17/19. NEP Program Evaluation Team on 4/29/19.
Participation in meetings, advisory committees (e.g., MACC, TAC, RSMW, DELSIC), news conferences, and other events by the Senior Science Director and Science Programs Manager to promote the program and advance its goals (20+ meetings per year).	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE's Science Programs Manager attended WQAC meetings on 12/5/18 and 3/20/19. PDE's Senior Science Director and Restoration Programs Manager attended Delaware Living Shorelines Committee meetings on 11/28/18 and 4/10/19. PDE held a press conference at Bartram's Garden in Philadelphia in February 2019 to discuss the revised CCMP and its implementation as well as the Freshwater Mussel Recovery Program (FMRP) and plans at Bartram's for a freshwater mussel production hatchery.
Other Non-NEP Funded	<ul style="list-style-type: none"> PDE started a Technical Workgroup in at the MUCWI Kickoff event on 2/19/19.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$21,818 FY19: \$33,155
Expected Long-term Outcomes	<ul style="list-style-type: none"> Coordinate science activities for improved management of the Estuary's natural resources (Strategic Plan Goal 1. Objective 1.4) Advance scientific knowledge and its use for improved management of the Estuary's natural resources (Strategic Plan Goal 1.Objective 1.5)
External Constraints	October 1, 2018 - April 30, 2019 Nothing to note.



Project/Activity Name	Coordination of NEPORT Data Collection and Reporting, and Tracking of and Transitioning to the Revised Comprehensive Conservation and Management Plan (CCMP)
Project/Activity Objective	Collect, compile, and submit GPRA leveraging and habitat project information via the NEPORT system, and provide leadership and coordination for tracking of and transitioning to the revised CCMP to meet NEP requirements.
Project/Activity Description	PDE collects data on projects for the annual GPRA process from its various activities and core partners, and compiles and enters that data into the NEPORT system, as required by EPA. In addition, in 2019 PDE will coordinate tracking of the revised CCMP using that process. PDE will focus on sharing and promoting the final revised CCMP in the first half of the year, and forming a new workgroup to address a particular need identified in the revised CCMP (engagement of underserved communities) in the second half of the year.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Science Planning Coordinator will continue to provide staff support for CCMP revision and transition to the Revised CCMP, under the leadership of PDE's Executive Director and Senior Science Director, and will also coordinate NEPORT tasks and assist with EIC, STAC and monitoring coordination needs. • The DELEP Management Conference, and particularly the EIC, will participate in meetings and calls and provide expert input and assistance for tracking the revised CCMP, with the Steering Committee providing high level oversight and guidance.
Accomplishments/Deliverables	
GPRA data collected from partners, compiled, and reported on (in NEPORT) to meet 1,500 habitat acre goal and pilot new revised CCMP tracking.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • During this time period, PDE worked with the EIC to develop and modify a tracking tool that will combine collecting GPRA information while also collecting information on projects related to CCMP progress and implementation. The tracking tool is expected to be sent out to partners in May 2019.
Convene workgroup to develop strategies and resources for engagement of underserved communities.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • PDE discussed this as part of our five-year program evaluation. Additional discussions are underway to begin assessing internal needs related to better serving underserved communities.
Other Non-NEP Funded	<ul style="list-style-type: none"> • NA
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$17,233 FY19: \$21,757
Expected Long-term Outcomes	<ul style="list-style-type: none"> • Strengthen the framework for shared leadership and



	<p>responsibility, which transcends geography, jurisdiction, and economic sector (Strategic Plan Goal 3. Objective 3.2).</p> <ul style="list-style-type: none"> • Support the revised CCMP to guide PDE and its DELEP partners' activities over the next 10+ years.
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <p>Nothing to note.</p>

Project/Activity Name	Science Project Coordination (ongoing, with new projects each year)
Project/Activity Objective	Manage PDE science projects to collect, synthesize, and utilize data on key habitats (tidal wetlands) and species (mussels, oysters) to improve scientific understanding, coordination, management and restoration of these resources.
Project/Activity Description	<p>PDE is directly engaged in a number of science projects that fill critical information and/or tool gaps in the Delaware Estuary that will continue into 2019, including the Mid-Atlantic Coastal Wetland Assessment (MACWA) program and the Freshwater Mussel Recovery Program (FMRP), which seeks to advance the science of freshwater mussels, including propagation, reintroduction, and studies of the water quality benefits and outcomes of investments in mussel bed restoration. PDE science staff participates in the Monitoring Advisory and Coordination Committee (MACC) and Toxics Advisory Committee (TAC) coordinated by the Delaware River Basin Commission (DRBC), the Regional Sediment Management Workgroup (RSMW), and the Oyster Restoration Task Force (ORTF). NEP funds are used to provide basic staff coverage to strategize and build support and funding for these science programs that address interstate priorities, resulting in significant leveraging of larger amounts of funding from other sources for full implementation, and communication of results through the web, meetings, conferences, and partnerships.</p>
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Science Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement PDE science projects and programs, working with PDE's Wetland Coordinator and Shellfish Coordinator under the guidance of the Senior Science Director. • The Barnegat Bay Partnership and Academy of Natural Sciences of Drexel University (ANS) are key partners for implementing MACWA. • ANS, US EPA Region III, and the Philadelphia Water Department are key partners for conducting freshwater mussel surveys, reintroductions, and propagation in support of regional



	restoration of shellfish.
Accomplishments/Deliverables	
Expanded surveys and transplants of freshwater mussels, to new streams or ponds, and engagement of volunteers resulting in new data collected/analyzed.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE continued to maintain partnerships with Longwood Gardens and Winterthur Museum, Garden & Library. Continued to coordinate with partners including the Academy of Natural Sciences, PWD, US Fish and Wildlife Service, and the Independence Seaport Museum on juvenile mussel grow-out.
Continued monitoring at MACWA long-term monitoring stations, with new data collected/analyzed.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> Long-term data collection occurred at Dennis (NJ) on 10/17/18 and Broadkill (DE) on 3/26/19.
Perform research to better understand how wetlands may or may not transgress in light of sea level change.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> During this time frame, PDE recovered field equipment and started to process data from the field experiment.
Reports/presentations and website updates sharing/promoting results.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE published the final report for the Pennsylvania Coastal Zone Management Program entitled “Juvenile Freshwater Mussel Stocking for Water Quality Enhancement in Southeast Pennsylvania Waters” in December 2018. PDE presented at the Atlantic Estuarine Research Society spring meeting on 4/5/19 about “Effects of Substrate Protection and Type on Ribbed Mussel Recruitment for Living Shoreline Applications”. PDE presented two posters at the Science and Environmental Summit - one on monitoring and one on ribbed mussels.
Better understanding of the role of freshwater and marine mussel beds in sustaining water quality and removing nutrient pollutants.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> A physiological experiment to measure clearance rate of oysters and ribbed mussels under spring conditions was conducted on 4/25/19 in the Mispillion River in Milford, DE.
Enhanced understanding of mussel habitat requirements that improves living shoreline designs in the urban freshwater tidal estuary.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE made plans with NFWF and PA CZM to do site assessment and collect RTK data in Philadelphia. This work is intended to affect living shoreline designs in urban corridors. Through field work and lab experiments done in coastal New Jersey, PDE analyzed data to better understand the mussel habitat requirements that improve living shoreline designs in the urban freshwater tidal estuary.
Other Non-NEP Funded	<ul style="list-style-type: none"> Continued planning for the start of the PENNVEST-funded hatchery, which will greatly expand PDE’s ability to rear and grow juvenile mussels for additional testing and in-stream



	<p>restoration.</p> <ul style="list-style-type: none"> • PDE continued to monitor juvenile mussels at Winterthur, Red Clay Creek, and White Clay Creek using new techniques including a concrete silo. This work was funded by DNREC CWQIG.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019</p> <p>FY18: \$15,766</p> <p>FY19: \$19,716</p>
Expected Long-term Outcomes	<ul style="list-style-type: none"> • Improved health and sustainability of wetlands for clean water, healthy habitat, community resilience (Strategic Plan Goal 1. Objective 1.1). • Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2). • Advance science for improved management of the Estuary (Strategic Plan Goal 1. Objective 1.5).
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <p>A planned ribbed mussel and oyster collection/survey had to be cancelled in November 2018 due to weather conditions.</p>

E. Regional Restoration Initiatives and Projects

Project/Activity Name	Restoration Project Coordination (ongoing, with new projects each year)
Project/Activity Objective	To advance the use of best management practices for protecting shorelines and wetlands, restoring freshwater and marine shellfish beds, and addressing water quality impairments throughout the tidal Estuary.
Project/Activity Description	PDE is directly engaged in a number of restoration projects that test and demonstrate best practices for protecting and restoring key resources of the Estuary, including tidal wetlands, shellfish (mussels and oysters), and water quality in rivers and streams (by reducing pollutants in runoff). These efforts will continue in 2019, with new research on how to enhance ecosystem services and water quality outcomes at various project sites installed as part of PDE's Delaware Estuary Living Shoreline Initiative. PDE also intends to expand its technical assistance to corporate, community, and/or sub-watershed partners for planning and implementing new living shorelines in urban landscapes, as well as new projects to address stormwater runoff, such as rain gardens and riparian buffers. PDE co-chairs the DE Living Shoreline Committee (DELSIC) and New Jersey Ecological Projects Committee, and routinely is called upon to advise states and federal agencies on their restoration needs, designs and monitoring tactics. NEP funds will provide basic staff coverage to continue advancing these restoration projects/programs under the Regional



	Restoration Blueprint, enhance the shell recycling program in support of living shoreline initiatives, leveraging larger amounts of funding from other sources for full implementation, and communicating results via meetings, conferences, electronic media, and partnerships.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Restoration Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement PDE restoration projects, working with PDE's Habitat Project Specialist and other staff as needed. • Rutgers University Haskin Shellfish Research Laboratory, The Nature Conservancy New Jersey Chapter, and the states of DE and NJ are key partners for the Delaware Estuary Living Shoreline Initiative. Rutgers also leads the Delaware Bay Oyster Restoration Task Force. • Local partners, including members of PDE's Corporate & Community Environmental Stewardship Program (CESP) and watershed collaborations like the Schuylkill Action Network (SAN) will plan and implement water quality and habitat improvement projects with PDE technical assistance.
Accomplishments/Deliverables	
Play a leadership role in Living Shoreline workgroups in DE and NJ to advance the use of living shorelines and other new wetland restoration tactics as an alternative to hardened structures, and in Camden and Philadelphia for adapting the use of living shorelines in freshwater urban environments to address environmental justice concerns.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE staff attended two meetings for the Delaware Living Shoreline Committee and Outreach Committee on 11/28/18 and 4/10/19. PDE's Restoration Programs Manager chairs the Standards of Practice Sub-Committee, which published "Developing Monitoring Plans for Living Shoreline Projects in Delaware: A Goal-Based Framework". • PDE staff participated in the Coastal Resiliency Collaborative in New Jersey on three occasions: a call on 11/13/18 and two in-person Leadership Committee meetings on 12/17/18 and 3/6/18. PDE's Restoration Programs Manager is the Chair of the Science Sub-Committee of the Leadership Committee. • Staff provided input to University of Delaware researchers regarding the role of ship wakes in living shoreline performance on 4/10/19. • PDE's Restoration Programs Manager: <ul style="list-style-type: none"> ○ Gave a presentation and was a panel member at the NJ Fish and Wildlife Living Shorelines Workshop on 3/18/19. ○ Attended a meeting on 2/27/19 to provide input to NJ DEP and Monmouth University on development of ecological prioritization methodology. ○ Was a featured speaker at a DNREC living shorelines



	<p>contractor training on 3/20/19. He spoke on building functional ecology in living shorelines.</p> <ul style="list-style-type: none"> Spoke at the DE Coastal Programs Research Symposium on 3/27/19 on water quality benefits of living shorelines.
Coordinate and expand shell recycling initiatives.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> PDE began to work with PA DEP to develop a General Permit for a shell management area in Philadelphia. We received the first draft during this time period. PDE hired a part-time driver to pick-up shell weekly from area restaurants as well as complete any other activities as needed. This was in an effort to reduce staff costs.
Work with partners in the Delaware Bay Oyster Restoration Task Force to advance measurable goals for oysters and sustain shell recycling efforts.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> At this point, the Delaware Bay Oyster Restoration Task Force does not exist.
Other Non-NEP Funded	<ul style="list-style-type: none"> PDE began to plan for a pollinator habitat that would be created with New Castle County. We also maintained existing habitats. Shell recycling pickups began in Kent County, DE in April. They are funded by DNREC and there is one restaurant participating.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019</p> <p>FY18: \$5,752</p> <p>FY19: \$18,393</p>
Expected Long-term Outcomes	<ul style="list-style-type: none"> Improved health and sustainability of wetlands for clean water, healthy habitats, community resilience (Strategic Plan Goal 1. Objective 1.1). Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2). Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal 1. Objective 1.3).
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <p>Nothing to note</p>

Project/Activity Name	Oyster Shell Recycling (Ongoing)
Project/Activity Objective	To sustain and expand a shell recycling program that can help address shell shortages in the Delaware Estuary, divert valuable shell from being landfilled, and build greater awareness for the importance of local shellfish as a key natural resources.
Project/Activity Description	The availability of oyster shell is a major constraint for sustainable oyster populations and health in Delaware Bay. Oyster (and other)



	<p>shell is also vital for constructing living shorelines that promote coastal resilience and provide ecologically sound habitat. PDE and collaborating organizations are engaged in oyster restoration and shoreline stabilization projects that require the use of reclaimed oyster shell as a critical component of project design and construction. Shell provides habitat for oyster larvae to recruit onto, and bagged shell attenuates waves and stabilizes shorelines. Reefs and living shorelines constructed using recycled shell serve as essential habitat for a diverse array of fish and wildlife. Live oysters and mussels that recruit onto recycled shell promote cleaner water through substantial water filtration services. The Shell Recycling Program is designed to alleviate the shell shortage for such projects, while promoting diverse outreach and recycling programs in the Delaware Estuary and its immediate vicinity. PDE is directly engaged in a number of restoration projects that test and demonstrate best practices for protecting and restoring key resources of the Estuary using shell.</p>
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Restoration Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement, sustain, and expand PDE's oyster shell recycling program, working with PDE's Habitat Specialist, Outreach Specialist, and other staff as needed. • Volunteers to assist with shell bagging activities. • Local partners, including members of the Shell Recycling Committee.
Accomplishments/Deliverables	
Project planning and reporting in winter.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE began to work with PA DEP to develop a General Permit for a shell management area in Philadelphia. We received the first draft during this time period. • Shell bagging events were planned for Summer 2019.
Participate in NJ oyster stock assessment workshop in February, and the Delaware Bay Oyster Task Force if/when it meets.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE staff attended the NJ Oyster Stock Assessment Workshop from 2/12/19 to 2/13/19. • At this point, the Delaware Bay Oyster Task Force does not exist.
Provide annual updates on shell recycling statistics, shell availability, and projects benefitted at living shoreline workgroup meetings.	<p>October 1, 2018 - April 30, 2019</p> <ul style="list-style-type: none"> • PDE staff attended the Delaware Living Shoreline Committee meeting on 11/28/18 where they reported on the status of oyster shell recycling.
Other Non-NEP Funded	<ul style="list-style-type: none"> • PDE received a grant from the Welfare Foundation in January to create public drop-off locations for oyster shell recycling in



	<p>Delaware.</p> <ul style="list-style-type: none"> PDE started working with DNREC to find a shell management area in Kent County, DE.
Amount of \$320 Grant Funds Spent	<p>October 1, 2018 - April 30, 2019</p> <p>FY18: \$0</p> <p>FY19: \$668</p>
Expected Long-term Outcomes	<ul style="list-style-type: none"> Improve the health and sustainability of wetlands for clean water, healthy habitat, community resilience (Strategic Plan Goal 1. Objective 1.1). Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2). Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal 1. Objective 1.3). Build affinity for the tidal Delaware River and Bay and its major tributaries. (Strategic Plan Goal 2. Objective 2.3).
External Constraints	<p>October 1, 2018 - April 30, 2019</p> <p>PDE's shell management is hindered because of lack of access to a small tractor or front loader to assist with pile management. Additionally, PDE attempted to start a Shell Recycling Committee, however the committee did not come together as anticipated.</p>

F. Delaware Estuary Science and Environmental Summit

Project/Activity Name	Delaware Estuary Science and Environmental Summit
Project/Activity Objective	To convene the 2019 Delaware Estuary Science and Environmental Summit as a means for stakeholder input and engagement and coordinating and advancing scientific knowledge for improved management and stewardship of the Delaware Estuary.
Project/Activity Description	PDE will host the 2019 Delaware Estuary Science and Environmental Summit. The goal is to attract 300 + participants. Session themes may include, but are not limited to, communicating science, ecological linkages, innovative outreach, living resources, monitoring and assessment, physical and chemical processes; restoration and conservation, water quality and quantity, and wetlands and other habitats. Additionally, special sessions may include post-Superstorm Sandy projects and lessons, and other topics to be determined.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> Lead staff for planning and organizing the Summit are PDE's Director of Outreach and Senior Science Director, but all PDE staff play some role in planning, organizing, and supporting the Summit.



	<ul style="list-style-type: none"> The STAC plays a critical role in planning the science content of the Summit and organizing/moderating science and restoration sessions.
Accomplishments/Deliverables	
Summit held January 2019	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The 2019 Delaware Estuary Science and Environmental Summit took place from January 27 - 30, 2019 in Cape May, NJ. There were 316 people in attendance. 145 presentations and posters were submitted.
Program and proceedings materials posted online mid-year.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> The program and proceedings were posted to PDE's website in February 2019 for public consumption.
Other Non-NEP Funded	<ul style="list-style-type: none"> NA
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: FY19:
Expected Long-term Outcomes	<ul style="list-style-type: none"> Continuous improvement of the health of the Estuary through sustained momentum of current success science-based activities and new high-priority activities (Strategic Plan Goal 1). Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries. (Strategic Plan Goal 2).
External Constraints	October 1, 2018 - April 30, 2019 The government shutdown in January caused some confusion because a large number of Science Summit attendees were government employees.

G. ADDENDUM - Schuylkill CleanSweep Application

Project/Activity Name	Schuylkill <i>CleanSweep</i> Application
Project/Activity Objective	To expand, enhance, and promote the <i>Schuylkill CleanSweep</i> mobile telephone application that supports litter/trash cleanups in the Schuylkill River Watershed, the largest tributary to the Delaware Estuary.
Project/Activity Description	With the increasing use of mobile-app technology, the <i>Schuylkill CleanSweep</i> app will allow for PDE and the Schuylkill Action Network (SAN) to engage a larger and more diverse audience in cleanups by allowing people to register for existing cleanups, identify litter hotspots, adopt a section of the watershed to clean up, and record data from a cleanup. The app supports the Schuylkill Scrub, a three-month litter cleanup initiative that occurs annually from March



	1 - May 31, as well as EPA's Trash Free Waters program. PDE coordinates the Schuylkill Scrub through the SAN, a collaboration of partners working to protect the Schuylkill River Watershed. Using social media, news media, and other platforms, PDE and the SAN will promote the app throughout the Schuylkill River Watershed to encourage volunteers to coordinate and participate in more cleanups.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's SAN Coordinator is primarily responsible for overseeing the coordination of the Schuylkill Scrub activities to expand, enhance, and promote the <i>Schuylkill CleanSweep</i> mobile application, working with PDE's Director of Outreach, Watersheds Program Manager, and other staff as needed. • Schuylkill River Greenways National Heritage Area will provide strategic direction and support of enhancing <i>CleanSweep</i>. • Miller Designworks is the media design firm working to enhance the application. • Volunteers assist with cleanup activities and monitoring. • Local partners, including but not limited to Schuylkill Headwaters Association, Perkiomen Watershed Conservancy, Berks Nature, Green Valleys Watershed Association, and Wissahickon Valley Watershed Association, municipalities and community groups will utilize the app.
Accomplishments/Deliverables	
Updated "Adopt a Section of the Watershed for Cleanup" interface to be more robust and to quantify litter in a particular area over a specified timeframe.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • During this time period, PDE worked to develop the framework for this new function of the app. Additional edits and refinements of the app are expected to be completed in Fall 2019.
Database of community groups and municipalities in the SRW using the app to assess how much trash is removed from their particular areas.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • Through the CleanSweep app, PDE has established a robust database of community groups and municipalities working to clean up the Schuylkill Watershed through cleanups.
Build capacity for local partners to enhance cleanup efforts and engage volunteers.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> • The CleanSweep app was launched in March 2019. The app makes it easier for local coordinators to facilitate their own cleanup. PDE began to subcontract with four local nonprofits in the Watershed to help promote the app.
Other Non-NEP Funded	<ul style="list-style-type: none"> • The main development of the CleanSweep app was funded by William Penn.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: \$0 FY19: \$2,136



Expected Long-term Outcomes	<ul style="list-style-type: none"> • Encourage targeted behavior changes that can reduce pollution entering local waterways and improve community resilience (Strategic Plan Goal 2. Objective 2.2). • Facilitate collaborative problem solving on key issues and in key areas and watersheds (Strategic Plan Goal 2. Objective 2.4). • Improve administrative systems and augment personnel to support growth and to raise awareness and visibility as well as to advance PDE's role as a lead facilitator and key Implementer. (Strategic Plan Goal 3. Objective 3.4).
External Constraints	October 1, 2018 - April 30, 2019 Nothing to note.

H. ADDENDUM - Trash Free Waters

Project/Activity Name	City of Philadelphia, Trash Free Waters Program (New)
Project/Activity Objective	To launch a pilot program to engage residents in improving local stewardship and capacity for decreasing trash in waterways and foster a sense of place and understanding of the impact that litter-free actions taken locally have on our shared water resources.
Project/Activity Description	PDE's Education and Outreach staff, working collaboratively with PWD, will expand upon the success of existing citywide stormwater education programs by empowering residents in select city neighborhoods to reduce street-borne litter through a service-learning oriented engagement program that includes physical infrastructure improvements (e.g. new trash receptacles).
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Director of Outreach is primarily responsible for overseeing the coordination of staff activities to implement PDE's outreach and public involvement programs, working with the Outreach Program Specialist, Marketing and Communications Manager, and Outreach Specialist. • Philadelphia Water Department is primarily responsible for collaborating with PDE on program design, interacting with other City of Philadelphia departments engaged in the City's Litter Action Plan, and providing match funding for staff time associated with the project. • Volunteers and businesses will participate in service projects that increase accountability for their neighborhoods being litter free. • Local schools, community organizations and artists participate in creative ways to make a visual connection to the science. • Regional recreational organizations will provide on the water experiences for volunteers.



Accomplishments/Deliverables	
Engage artistic partners and neighborhood businesses/locals in the creation and customization of 30- 60 trash receptacles.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> Mural arts was contracted to develop a handbook on how to coordinate with community members in order to create community-designed trash receptacles. PDE partnered with Southwest CDC, TTF Watershed Partnership, and the African Cultural Alliance of North America Inc. to implement Community Cans Program in the Southwest and Juniata neighborhoods in Philadelphia. PDE worked with partners to target commercial corridors using Philadelphia's hot spot analysis and identify potential can installation sites and received quotes for the work.
Provide 2-4 service and volunteer opportunities (i.e., host local clean-ups, storm drain marking events) engaging community members in beautifying their neighborhoods, and sharing results.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE partnered with United by Blue, PWD, and TTF to host a cleanup and storm drain marking event in Tacony Creek Park on 3/16/19. Part of the park is in the Juniata neighborhood. During this time period, PDE made plans to host a cleanup in Juniata during the Summer of 2019.
Provide 2-4 experiential learning opportunities (i.e. tours of drinking and waste water treatment plants, on the water experiences) engaging community members in understanding how trash and litter directly impact Philadelphia's waterways.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE hosted a "Be a Scientist" event about trash and watersheds in Southwest Philadelphia at Bartram's Garden on 4/28/19. About 50 people attended.
Develop tools/metrics for measuring the impacts of trash-free waters projects on community stewardship and understanding to inform future programming efforts and refine the CleanPHL Litter Index.	October 1, 2018 - April 30, 2019 <ul style="list-style-type: none"> PDE worked with the City of Philadelphia to determine how best to track utilization of new cans.
Other Non-NEP Funded	<ul style="list-style-type: none"> Nothing to note.
Amount of \$320 Grant Funds Spent	October 1, 2018 - April 30, 2019 FY18: FY19:
Expected Long-term Outcomes	<ul style="list-style-type: none"> Encourage targeted behavior changes that can reduce pollution entering local waterways and improve community resilience (Strategic Plan Goal 2. Objective 2.2).



	<ul style="list-style-type: none"> • Facilitate collaborative problem solving on key issues and in key areas and watersheds (Strategic Plan Goal 2. Objective 2.4). • Improve administrative systems and augment personnel to support growth and to raise awareness and visibility as well as to advance PDE's role as a lead facilitator and key Implementer. (Strategic Plan Goal 3. Objective 3.4).
External Constraints	October 1, 2018 - April 30, 2019 Nothing to note.



II. DELAWARE ESTUARY NATIONAL ESTUARY PROGRAM (NEP) FY20 WORK PLAN

Partnership for the Delaware Estuary, Inc. (PDE) is a non-profit 501(c)(3) organization whose mission is entirely focused on protecting and enhancing the Delaware Estuary. PDE, host of the Delaware Estuary Program, leads science-based and collaborative efforts to improve the tidal Delaware River and Bay, which spans Delaware, New Jersey, and Pennsylvania.

PDE envisions everyone working together for clean water, thriving fish and wildlife, and abundant recreational activities in and around the tidal Delaware River and Bay to support communities and a robust economy. To make this vision a reality, PDE seeks to be:

- A model implementer of practical solutions that fill critical gaps and engage people as stewards of the Estuary;
- The driver of attention and joint problem solving to overcome the challenges facing the Estuary; and,
- The driver of attracting financial support and sustainable investment in the Estuary.

PDE values:

- Science - using science as an objective basis for decision-making and holistic action.
- Collaboration - working together across sectors and jurisdictions to set common goals, share responsibility for actions, and achieve powerful results.
- Innovation - combining science and forward-looking creativity to develop and implement new and better tools, projects, and programs.
- Balance - taking into account the many different values of the living and working river to maximize engagement and stewardship of a diversity of stakeholders with integrity and objectivity.
- Strategic Investment - identifying and pursuing opportunities with the greatest potential net impact.

PDE recently completed a 2-year process to revise the Comprehensive Conservation and Management Plan (CCMP) for the Delaware Estuary working with members of the Steering Committee, Estuary Implementation Committee, Science and Technical Advisory Committee, PDE Board of Directors, members of the ad hoc Forests and Strong Communities Teams, interested members of the general public and other stakeholders, and PDE's staff.

This work resulted in a revised CCMP, focused on the following Themes and Goals:

Theme 1 – Clean Water

- Goals 1 - Reduce Nutrient Pollution and Its Impact
- Goal 2 - Reduce Other Pollutants and Their Impacts
- Goal 3 - Sustain Flow for Drinking Water and Ecosystems

Theme 2 – Strong Communities

- Goal 1 - Increase Community Resilience And Access
- Goal 2 - Improve Public Awareness And Stakeholder Engagement



Theme 3 – Healthy Habitats

- Goal 1 – Prevent Wetlands Loss
- Goal 2 – Stem Forest Loss
- Goal 3 – Increase and Improve Fish and Shellfish Habitat

PDE's NEP FY20 Work Plan's focus areas are guided by the revised CCMP as well as PDE's 2013-2018 Strategic Plan. Planning is just beginning for the completion of a new Strategic Plan, which will guide PDE's work over the next 3-5 years, in support of implementation of the revised CCMP. In the interim, the existing CCMP will continue to be a guiding document for PDE, outlining specific goals, objectives, and strategies that PDE will seek to undertake to advance CCMP actions.

PDE Strategic Plan Goals:

1. Continuous improvement of the health of the Estuary through sustained momentum of current successful science-based activities and new high-priority activities.
2. Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries.
3. Heightened visibility, profile, and organizational capacity for improving the health of the Estuary.
4. Financial resources for PDE and for the Estuary to enable a greater impact on improving the health of the Estuary.

The CCMP and Strategic Plan goals listed above will be addressed in part through implementation of area-specific Strategies outlined in the Work Plan. However, some Strategic Plan Objectives are highlighted less than others in the Work Plan, since NEP funds are not used to support them (for example, fundraising efforts).

PDE proposes using NEP Federal Fiscal Year 2020 funding in the allocated amount of \$600,000 for the Projects/Activities identified in Sections II of the Work Plan Summary Table, and Proposed New and Ongoing Projects for FY20, respectively. As a 501(c)(3) non-profit organization, PDE anticipates raising significant additional funds (two to three times the NEP funding allocation) to assist in implementing this Work Plan.

The format of the FY20 Work Plan has been updated to reflect the priorities of the revised CCMP. Our focus for the FY20 Workplan also includes aligning NEP reporting with the revised CCMP, and implementing and fine-tuning new tracking tools and processes with partners.

The following FY20 NEP Work Plan Summary Table shows how NEP funded Projects/Activities align with currently approved CCMP Goals and Strategies, as well as a basic budget for each NEP funded Project/Activity to be accomplished.



III. DELAWARE ESTUARY FY20 NEP WORK PLAN SUMMARY TABLE					
Project/Activity Name	Primary Responsible Staff	Supports Strategic Plan Goal	Supports CCMP Strategies	Amount	Expense Type
A. Program Office Services				\$215,270	
Program Planning and Administration and Support of the Management Conference	Executive Director; Science Program Manager	Goal 3	All	\$113,020 \$108,021 \$5,000	Staff support National Estuary Program travel
Financial and Operations Management in Support of the Management Conference and Organization	Deputy Executive Director	Goal 3	All	\$53,345 \$43,345 \$10,000	Staff support Contractual (IT system support)
Grant Writing and Management to Support CCMP and Strategic Plan Implementation	Coordinator of Grants	Goal 4	All	\$33,497	Staff support Staff support
PDE Contact Database Management	Director of Donor Engagement; Grants and Events Administrator	Goal 3	Strategy C2.1	\$15,408	

B. Education & Outreach Partnerships & Initiatives				\$82,749	
Holding and Participating in Targeted Public Events and Festivals Across the Delaware Estuary	Outreach Program Specialist (with other PDE staff)	Goal 2	Strategy C2.2	\$26,447 \$19,147 \$6,000 \$1,300	Staff support Staff support (various) and event costs Event program travel
Educational Partnerships, Programs, and Materials to Address CCMP and Strategic Plan Priorities	Director of Outreach, Outreach Specialist, Watershed Planning Coordinator	Goals 1 and 2	Strategies W1.4, W2.1, W3.4, C1.2, C1.4, and C2.3	\$51,302 \$48,802 \$2,500	Staff support Education program travel
Publications, Downloads, and Storm Drain Marking Supplies	Various staff (staff time captured above)	Goal 2	Strategies C2.1, C2.4 and C2.5	\$5,000	Contractual (design, printing, postage and social media)
C. Marketing & Communication Initiatives				\$79,751	
PDE Website Operation & Maintenance	Marketing & Communications Manager	Goals 2 and 3	Strategy C2.1, supports all Strategies	\$12,333 \$10,333	Staff support

Media Outreach and "Estuary News" Newsletter	Marketing & Communications Manager, Director of Outreach	Goals 2 and 3	Strategy C1.2	\$2,000 \$67,417 \$27,417 \$39,000 \$1,000	Contractual (website hosting, maintenance) Staff support Contractual (printing, design, postage) Marketing & Communications travel
D. Coordination of Science and Management Needs				\$172,202	
Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management	Senior Science Director	Goal 1	All	\$67,352 \$58,352 \$5,000 \$4,000	Staff support Sub-awards to STAC or other experts Science program travel
Coordination of CCMP Implementation and Tracking and NEPORT Data Collection & Reporting	Science Planning Coordinator	Goal 3	All	\$66,833 \$61,333 \$500 \$5,000	Staff support CCMP meeting/workshop travel Contractual (Environmental Justice consultant)

Science Project Coordination	Science Programs Manager, Wetlands Coordinator, Shellfish Coordinator	Goal 1	Strategy H1.1	\$37,470 \$36,017 \$2,000	Staff support Science project travel
E. Regional Restoration Initiatives and Projects				\$45,028	
Restoration Project Coordination	Restoration Programs Manager, Habitat Project Specialist	Goal 1	Strategy H1.3, H1.4, H2.2, W1.2, W3.2	\$38,713 \$36,213 \$2,500	Staff Support Science Restoration Travel
Oyster Shell Recycling	Restoration Programs Manager, Habitat Project Specialist, Outreach Specialist, Science Intern	Goal 1	Strategy H1.3, H1.4, H2.2, W1.1 and W1.2	\$5,915 \$3,725 \$400	Staff Support Oyster Shell Recycling Travel
F. Delaware Estuary Science and Environmental Summit				\$5,000	
Technical Assistance and Capacity-Building Tools, Training, and Direct Assistance	Senior Science Director, Director of Outreach	Goal 3	All	\$5,000	Contractual – to being planning of 2021 Summit
G. ADDENDUM – Urban Waters Ambassador				\$50,000	
Urban Waters Ambassador	TBD		All	\$50,000	Staff Support
TOTAL				\$600,000	

IV. DELAWARE ESTUARY FY20 BUDGET AND STAFF

A. Proposed PDE Work Plan Expenditures, Including Match

1. FY20 NEP BUDGET BREAKDOWN

PROGRAM ELEMENTS		AMOUNT
A.	Program Office Services	\$215,270
B.	Education & Outreach Partnerships & Initiatives	\$82,749
C.	Marketing & Communications Initiatives	\$79,751
D.	Coordination of Science & Management Needs	\$172,202
E.	Regional Restoration Initiative & Projects	\$45,028
F.	Delaware Estuary Science and Environmental Summit	\$5,000
G.	Urban Waters Ambassador	\$50,000
NEP WORK PLAN TOTAL		<u>\$650,000</u>

For a detailed breakdown of budgeted NEP funding, please see Appendix I.

2. FY20 NEP NON-FEDERAL MATCH

PARTNERS	AMOUNT
Delaware River Basin Commission	\$125,000
State of New Jersey	\$125,000
State of Pennsylvania	\$125,000
State of Delaware	\$125,000
City of Philadelphia - Philadelphia Water Department	\$110,000
Schuykill River Restoration Fund	<u>\$50,000</u>
MATCH TOTAL	<u>≥\$660,000</u>

For a detailed breakdown of non-federal match from primary partners' activities, please see Pages 46-47.



B. FY20 Non-Federal Match Breakdown – Primary Partner Activities

In FY20, Delaware, New Jersey, Pennsylvania, Philadelphia Water Department, and the Delaware River Basin Commission have agreed to provide direct and in-kind match for PDE's FY20 NEP funding. Please find below a description of the activities that are anticipated to be used as match:

Program Implementation and Reporting

Delaware River Basin Commission:

\$125,000 (DRBC funds, In-kind)

DRBC staff time spent on Delaware Estuary-related activities throughout the year. Specific Estuary related activities (not covered by federal funds) anticipated to include:

- DRBC involvement in Delaware Estuary Program (DELEP) committees (EIC, STAC, Steering Committee) and coordination with DELEP partners throughout the year.
- Water Quality Coordination/Assessment/Reporting for the Delaware Estuary.
- Monitoring and analysis of estuary water quality (nutrients, PCBs, etc.).
- Aquatic life assessment, including native species, in the Estuary.
- DRBC Advisory Committee activities involving the Delaware Estuary.
- Watershed Partnerships in the Delaware Estuary.
- DRBC participation in water pollution control associations.

Ecosystem Status and Trends

New Jersey Department of Environmental Protection:

\$125,000 (State funds, In-kind)

The New Jersey Department of Environmental Protection continues to monitor the Delaware Bay for pathogens as required by National Shellfish Sanitation Program, remove debris as part of the Clean Shores program, and monitor for algal blooms (Chlorophyll a) through remote sensing. In addition, NJDEP monitors for nutrients using a probabilistic design and ongoing studies on *Vibrio parahaemolyticus* in oysters in both subtidal and intertidal harvest. These studies help validate or improve post-harvest management practices in an effort to reduce illnesses and promote the product.

Ecosystem Restoration and Protection Projects

Pennsylvania Department of Environmental Protection:

\$125,000 (State funds, in-kind)

Bioretention and Infiltration BMPs for Media Borough

Media Borough will implement a Growing Greener funded green infrastructure project to address a problematic stormwater runoff area. Bioretention and Infiltration BMPs for Media Borough will install continuous tree trenches in the verges of two streets and bioretention basin bump-outs at a nearby intersection. The project engineer will create final plans and bid specifications for the project. The project



engineer will also oversee all the construction activities and inspect the construction when complete. A contractor will construct a continuous tree trench in the verge (the area between the sidewalk and the curb) on both sides of Jefferson Street between South Avenue and South Olive Street; a continuous tree trench in the verge of the west side of South Olive Street; and two bioretention basin bump-outs at the south west corner and at the north west corner of the Jefferson and South Avenue intersection. The project will retrofit existing streets. The trenches and bump-outs will be planted with native trees and plants.

The successful completion of this BMP project will result in the installation of 650 linear feet of continuous tree trenches with a stormwater storage capacity of 5,500 cubic feet and an infiltration rate of .5 inch per hour or 600 cubic feet per storm event. It will also result in the installation of two bioretention basin bump-outs with a combined stormwater storage capacity of 130 cubic feet and an infiltration rate of .5 inch per hour or 72 cubic feet per storm event. This project will significantly decrease the volume of stormwater runoff and flooding in these low to moderate income neighborhoods. It will diminish the effects of runoff pollution on the water quality of the Ridley Creek Watershed. This project is a protection activity for Ridley Creek. It will capture stormwater runoff in an identified problem area of the borough, retaining it until it can infiltrate into the ground or be absorbed or dispersed through evapotranspiration. The trees and bioretention plantings will also enhance the aesthetics of the targeted neighborhoods.

State of Delaware

\$125,000 (State funds total, In-Kind)

Delaware Department of Transportation (DelDOT):

The Delaware Department of Transportation (DelDOT) National Pollutant Discharge Elimination System (NPDES) program is actively inventorying, inspecting, and performing maintenance on our stormwater infrastructure within the Delaware Estuary watershed. In addition to this work, DelDOT's NPDES program is implementing stream restoration projects either in conjunction with retrofits of stormwater facilities, or as individual projects to improve water quality. In fiscal year 2020, DelDOT is committed to \$60,000 of non-federal match for preliminary engineering design for stream restoration project(s).

Delaware Department of Natural Resources and Environmental Control

Pending approval of the 2020 State of Delaware budget, Delaware Department of Natural Resources and Environmental Control (DNREC) will provide \$65,000 in non-federal match for monitoring water quality in the Delaware Estuary in support of the Delaware Estuary CCMP.

City of Philadelphia - Philadelphia Water Department - Trash Collector Operations:

\$110,000 (Local funds, In-kind)

Philadelphia Water Department operates a large and small skimming vessel that retrieves and disposes of floatable waste. In-kind match includes costs associated with the daily operations of the skimming vessels designed to remove debris from targeted reaches of the Delaware and Schuylkill River.

Schuylkill River Restoration Fund (SRRF)

\$50,000



The Schuylkill River Restoration Fund is providing a total of \$65,000 in funding (\$50,000 of which is being shown as match) to support the installation of a stormwater treatment project on the headwaters of the Pine Creek in Lionville, PA. This project support PDE's efforts to improve water quality in the Schuylkill River Watershed, the largest tributary of the Delaware Estuary.

In addition to match outlined above, it is anticipated that all primary Partners will provide additional in-kind services through staff time dedicated to CCMP implementation and monitoring.

TOTAL MATCH: ≥\$660,000 (above the 1-to-1 Non-Federal match as required)



C. NEP Staff and Responsibilities

NEP Staff	Responsibilities
	Program Office Services
Kathy Klein - Executive Director	<i>Program Planning and Administration, including coordination of the Management Conference (including Board, EIC, Steering Committee)</i>
Nancy Descano - Deputy Executive Director	<i>Business operations and financial management</i>
Karen Forst - Coordinator of Grants	<i>Grant and Work Plan writing and reporting</i>
Elizabeth Horsey, Kylie Hall Director of Donor Engagement, Development Coordinator	<i>Contact database management</i>
	Education & Outreach Partnerships & Initiatives
Renée Brecht - Director of Outreach	<i>Education & Outreach Program Planning and Administration, including building and maintaining staff, partnerships and programs to address CCMP public engagement priorities</i>
Sarah Morales - Outreach Specialist	<i>Local community and decision-maker outreach and technical assistance (focus: riparian buffers, storm water BMPs) responding to public requests for information</i>
Kate Hutelmyer and/or Virginia Vassilotti, Watersheds Program Manager, SAN Coordinator	<i>Local community and decision-maker outreach and technical assistance (focus: riparian buffers, storm water BMPs, source water protection)</i>
Kaitlin Tucker - Watershed Planning Coordinator	<i>Local community and decision-maker outreach and technical assistance (focus: planning for community resilience)</i>
Brittany Musolino - Outreach Program Coordinator	<i>Implementation of teacher and classroom programs, and educational and awareness-raising events</i>
	Marketing & Communications Initiatives
Kate Layton - Marketing & Communications Manager	<i>Mass communications including media outreach, website updates/maintenance, (ecoDelaware.org, DelawareEstuary.org,) and newsletter production (Estuary News)</i>
	Coordination of Science & Management Needs
Danielle Kreeger - Senior Science Director	<i>Science & Restoration Program Planning and Administration, including building and maintaining staff, partnerships and programs to address CCMP priorities, coordination of the STAC and representing PDE on key scientific committees and at meetings/conferences</i>
Angela Padeletti - Science Programs Manager	<i>PDE Science project implementation (wetlands, freshwater mussel surveys)</i>
Emily Baumbach – Estuary Program Coordinator	<i>Coordination of CCMP Revision, NEPORT data management and reporting, State of Estuary reporting</i>
Kurt Cheng - Shellfish Coordinator	<i>PDE Science project implementation, focusing on shellfish</i>
LeeAnn Haaf -Wetlands Coordinator	<i>PDE Science project implementation, focusing on wetlands</i>
	Regional Restoration Initiatives & Projects
Josh Moody - Restoration Programs Manager	<i>PDE Restoration project implementation (living shorelines, shellfish restoration/recovery)</i>
Sarah Bouboulis - Habitat Project Coordinator	<i>PDE restoration project implementation, focusing on habitat and water quality improvement</i>
Science Intern(s)	<i>PDE restoration project implementation, focusing on shell recycling</i>



V. PROPOSED NEW AND ONGOING PROJECTS FOR FY20

VI. Program Office Services

Program Implementation & Reporting: Planning and Administration, Financial Management, Tracking, and Reporting

The Partnership for the Delaware Estuary (PDE) manages and directs the day-to-day affairs of the National Estuary Program's (NEP) Delaware Estuary Program (DELEP) in accordance with its Comprehensive Conservation and Management Plan (CCMP) and Strategic Plan. This includes financial management critical to meeting NEP and other federal funding requirements, creating a stable base of operations for the program and organization, and leveraging additional grant funds needed for the organization to advance CCMP priorities. It also includes coordination and management of PDE's Board of Directors and the DELEP Management Conference, including the Estuary Implementation Committee (EIC) and the DELEP Steering Committee. With the roll out of the revised CCMP for the Delaware Estuary in early 2019, implementation of the revised CCMP will continue to be a major focus for the Management Conference, especially the EIC, into 2020 and beyond. The Board and senior management will continue to focus on planning for future growth and infrastructure needs and raising the profile and private sector support for PDE's work, in addition to providing leadership and input into the unveiling of the revised CCMP.

NEP funding will be used in FY20 to provide staff salary support for the Executive Director, Science Program Manager, Deputy Executive Director, Coordinator of Grants (responsible for grant writing and administration), Director of Donor Engagement (contact donor database) and Grants & Events Administrator (contact donor database), as well as related office services and supplies, including contractual services and supplies for computer system maintenance. Travel funds have been budgeted to cover travel-related expenses by the Executive Director, Science Program Manager, Deputy Executive Director, and Development staff for NEP business including, but not limited to, the Executive Director's participation in NEP meetings as required. It should be noted here, and throughout this Work Plan, that PDE operates on a calendar year basis. **So once awarded on or before October 1, 2020, FY20 NEP funds will be included in PDE's annual budget for 2020 and spent largely in calendar year 2020 (January 1, 2020 - December 31, 2020).** Specific program areas/activities to be supported include:

CCMP Goal Area & Strategy	All
Project/Activity Name	Program Planning and Administration and Support of the Management Conference (ongoing)
Project/Activity Objective	Provide support to the Management Conference (including the Steering Committee, Estuary Implementation Committee) in implementing the Revised CCMP and PDE's Strategic Plan*, overall program coordination, management and direction. (*PDE will be starting the process to develop a new Strategic Plan for 2020 and beyond.)
Project/Activity Description	Maintain the engagement and effectiveness of the Management Conference through regular meetings and communication for coordinated



	implementation of the CCMP, ensuring adherence to NEP requirements, and input that balances the three states' and public and private interests (through joint meetings/leadership with the Board), and promotion of DELEP at the highest levels (through the Steering Committee, annual NEP meetings, meetings with federal lawmakers). The focus of Management Conference activity in 2020 will continue to be on the revised CCMP.	
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Executive Director plans, organizes, holds, participates in and presents at Management Conference meetings and maintains communication between meetings, with the assistance of senior staff members. PDE's Science Program Manager assists the Executive Director with operation of NEP functions and coordination between Science and E&O staff/programs. Members of the Management Conference attend and actively participate in meetings and on committees/calls in between meetings, as needed. 	
Outputs/Deliverables	<ul style="list-style-type: none"> Quarterly meetings of the EIC (some jointly with the Board and STAC) with additional conference calls in between, monthly or as needed. Annual meeting and mid-year call of the Steering Committee. Participation in fall and winter NEP meetings, with associated federal decision-maker outreach. Participation in meetings, advisory committees, news conferences, and other events to promote the program and advance its goals (20+ per year). Implementation of the recommended actions from the 2019 five-year NEP Program Evaluation Process. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> Quarterly EIC (and Board) meetings in November/December, February, May, September. EIC approval of NEP work plan at May meeting. Fall Steering Committee meeting and Spring call. NEP meetings in the Fall (NEP-hosted) and Winter (Washington, DC). 	
Estimated Budget	\$103,282 (Staff support of \$98,282 and all Program travel of \$5,000)	
Long-term Outcomes	Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3)	
CWA core program(s) the project supports <i>These activities are required as part of the National Estuary Program</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X



	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	<p>In addition to coordinating the Management Conference, PDE also coordinates/manages a Board of Directors of 20 representatives of other stakeholder groups including business, industry, local government, academia, and nonprofit partners, providing critical private/local stakeholder input into PDE operations along with the government agency input provided by the EIC and Steering Committee. Certain Board functions and operational areas (most notably fundraising) are not supported by NEP funds. PDE has a number of very active committees, including a Development Committee that contributes substantially to the effectiveness and financial well-being of the program. PDE anticipates that a number of past and present Board Members will continue to be very active on this Committee in 2020 and that it will continue to meet monthly and work with PDE staff to plan, promote, and hold events throughout 2019 and 2020, with a goal of raising more than \$75,000 in event tickets and sponsorship, and engaging hundreds of people. Two new committees were established in recent years, with staff support from the Executive Director: An Advocacy Committee to provide guidance and oversight on the organization's advocacy activities, and a Hatchery Committee to provide guidance and oversight on the organization's efforts to create a mussel propagation hatchery using funds to be provided by PennVest.</p>	
	<p>As the Director of one of the 28 National Estuary Programs, PDE's Executive Director is automatically a member of the Board of Directors for the Association of National Estuary Programs (ANEP) - an organization that EPA helped to create and which supports tech transfer across the NEPs as well as conducts outreach to federal decision-makers and partners in Washington, DC, including to members of the Congressional Estuary Caucus. PDE's Executive Director is active in ANEP, including advocating for funding of the National Estuary Program using non-NEP funding to pay ANEP membership dues and to cover staff time associated with ANEP activities.</p>	
	<p>In any given year, PDE's Executive Director also participates on a number of committees and projects that complement and extend the leadership role that PDE plays in the Estuary region that are funded through other non-NEP sources. In 2019 these included the: Delaware Valley Planning Commission's Municipal Technical Assistance Program (MTAP), Delaware Nature Society's Clean Water Campaign, Schuylkill Action Network's (PA) Executive Steering Committee, and participation in committees of the Coalition for the Delaware River Basin, which are supported by non-NEP funding. PDE anticipates participation in these and similar efforts in 2020.</p>	



CCMP Goal Area & Strategy	All	
Project/Activity Name	Financial and Operations Management in Support of the Management Conference and Organization (ongoing)	
Project/Activity Objective	Provide support to the Management Conference and the PDE Board of Directors for exercising financial oversight and ensuring operational support for activities to implement the CCMP and PDE's Strategic Plan.	
Project/Activity Description	Provide sound financial information and management needed to support decision-making and oversight, meet NEP grant financial and administrative requirements, and provide a stable operating platform for PDE, including budgeting, accounting, audits, financial reporting, and IT system operations and maintenance.	
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> PDE's Deputy Executive Director will lead the annual budgeting process and ensure sound financial management, accountability, and reporting, and sound operations of program office systems. The Board of Directors is responsible for fiscal management oversight, including reviewing and discussing quarterly financial reports and audit results. The EIC reviews and approves PDE's annual NEP Work Plan, including the NEP budget. 	
Outputs/Deliverables	<ul style="list-style-type: none"> Quarterly financial reports to the Board. PDE annual budget approved by the Board. Annual Audited Financial Statements. Annual Form 990 remitted to the IRS. IT systems operation and maintenance. Monthly Labor Reports to US Department of Labor and other jurisdictional reports as required. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> Quarterly financial reports in December, February, May, and September. Board approval for the PDE budget in December. Audited Financial Statements in May. Budgeting for NEP Work Plan for EIC approval in May. 	
Estimated Budget	\$61,534 (Staff support of \$43,594 and contractual IT support of \$17,940)	
Long-term Outcomes	Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3)	
CWA core program(s) the project supports <i>These activities are required by the National Estuary</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	



<i>Program</i>	(4) addressing diffuse, nonpoint sources of pollution	
	(5) protecting wetlands	
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	PDE's Finance Committee (a subcommittee of the Board) is made up of volunteers mostly from the Board of Directors and meets at least quarterly to provide additional financial management oversight and guidance for the organization. PDE's Infrastructure Committee will be focusing on solutions to the office space, storage, and computer system needs of the organization for 2020 and beyond. It is anticipated that a number of Board Members and other volunteers will be active on both of these Committees in 2020.	

CCMP Goal Area & Strategy	All
Project/Activity Name	Grant Writing and Management to Support CCMP and Strategic Plan Implementation (ongoing)
Project/Activity Objective	Secure and manage grant funding to support CCMP and strategic planning implementation by PDE and its partners.
Project/Activity Description	Research, prepare, and submit grant proposals for funding to support PDE work and leverage NEP funds. Prepare and manage NEP and other grants in accordance with work plans and grant administrative and programmatic conditions, providing reports as needed.
Implementers, Partners and Their Role(s)	<ul style="list-style-type: none"> PDE's Coordinator of Grants has primary responsibility for writing, submitting, managing, and reporting on grants. PDE applies to a variety of grant sources, including foundations, corporations, state agencies, and federal agencies (including most of our Management Conference partner agencies).
Outputs/Deliverables	<ul style="list-style-type: none"> 30 - 40 proposals submitted, working toward a 70% acceptance rate. \$1,474,500 secured in federal, state and local government grant funding (including NEP funds) and \$250,000 in foundation grants. Coordinate development and submission of Work Plan and Semi-Annual Progress Report.
Estimated Milestones/Timeline	<ul style="list-style-type: none"> Submit NEP FY20 Work Plan by June 1, 2019, including the Semi-Annual Progress report for October 1, 2018 - April 30, 2019 (FY19). Research and prepare 3-4 grant requests per month to meet annual goal.
Estimated Budget	\$32,160 (Staff support of \$32,160)



Long-term Outcomes	Financial resources for PDE and for DELEP partners to enable a greater impact on improving the health of the Estuary (Strategic Plan Goal 4).	
CWA core program(s) the project supports <i>Grants written and managed by PDE support a wide range of non-regulatory activities, as well as the program in general</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	The deliverables specified above are reliant on capacity to implement them and additional sources of support of grant-funding, which PDE received in the past and anticipates receiving in 2020. One of the main sources of this funding has been the State of Delaware through its budget for the Delaware Department of Natural Resources and Environmental Control (DNREC). The funding from the State of Delaware (\$61,200 in FY19) also provides support for other key PDE programmatic activities and needs. It is anticipated that FY20 support will be increased to \$120,000, and will continue to be able to support grant writing and grant administration. Each year, in support of this funding, PDE's Executive Director testifies at the Delaware General Assembly's Joint Finance Committee hearing for DNREC - an activity not supported by NEP funding.	

CCMP Goal Area & Strategy	Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement Strategy C2.1: Through Marketing & Communications, Build Awareness and Brand for the Delaware River and Bay
Project/Activity Name	PDE Contact Database Management (ongoing)
Project/Activity Objective	Maintain and grow PDE's database of more than 25,000 contacts for mail and email distribution of information to stakeholders.
Project/Activity Description	PDE performs the regular maintenance needed to keep existing contact information current, adds new contacts to the database, and keeps all contact information in one place that is easily accessible and searchable for use in a variety of outreach activities, including the distribution of the <i>Estuary News</i> newsletter.



Implementers, Partners, and Their Role(s)	PDE's Director of Donor Engagement is the administrator of the PDE contact database. PDE's Grants and Events Administrator assists with database management and data entry.	
Outputs/Deliverables	<ul style="list-style-type: none"> • Generate quarterly mailing/email lists for (and subsequent updates from) <i>Estuary News</i> distribution. • Increase the number of email addresses captured (as PDE moves away from paper to digital formats). • Add 750+ new contacts per year. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Winter and Summer newsletter mailing preparation and follow-up. • Fall and Spring e-news blast preparation and follow-up. 	
Estimated Budget	\$15,572 (Staff support of \$15,572)	
Long-term Outcomes	Heightened visibility, profile, and organizational capacity for improving the health of the Estuary (Strategic Plan Goal 3).	
CWA core program(s) the project supports <i>The contact database is integral for stakeholder engagement, which is a core feature/value of the National Estuary Program.</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	
	(5) protecting wetlands	
	(6) protecting coastal waters through the National Estuary Program	✓
	(7) protecting large aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	PDE's contact database is used for a wide variety of purposes, including development activities that are not NEP funded, but which contribute considerably to engaging people and bringing in financial support from private individuals and companies. Among these non-NEP funded uses are the distribution of regular donor communications and appeals for contributions, which raised \$66,658 in 2018. PDE has invested considerably in its development office over the last few years and anticipates continuing to grow this revenue in 2020 and beyond, using non-NEP funding.	



VII. EDUCATION & OUTREACH PARTNERSHIPS & INITIATIVES

NEP Program Implementation & Reporting: Outreach & Public Involvement

PDE's outreach and public involvement objectives are met largely by Education & Outreach staff who work with partners to deliver a wide range of programs and activities designed to reach, engage, and inform the public about DELEP and the Delaware Estuary for improved stewardship of its resources. NEP funding will be used in FY20 to provide staff salary support for the Education & Outreach staff and various staff assisting with outreach activities, as well as contractual services. Travel funds have been budgeted to cover travel related expenses by PDE Education & Outreach staff to attend local, regional and, possibly, national meetings/conferences related to outreach and education activities. Priorities for 2020 include educational programs designed to influence/change behavior to reduce non-point source pollution and increase community resilience. Target audiences include teachers (and their classrooms), watershed partners, volunteers, and members of the interested public. Two new initiatives in 2020 will include staff training on the topic of Environmental Justice, and investigating options for increased citizen involvement in PDE planning and CCMP implementation. Both of these initiatives will be led by PDE's Education & Outreach staff. Specific program areas/activities to be supported include:

CCMP Goal Area & Strategy	Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement Strategy C2.2 Utilize events to increase stewardship and engage new people
Project/Activity Name	Holding and participating in targeted high impact public events and festivals across the Delaware Estuary (e.g., Coast Days, Philly Science Festival) (ongoing)
Project/Activity Objective	Raise awareness and build affinity and stewardship for the resources of the Estuary.
Project/Activity Description	PDE receives dozens of requests from partners to participate in local and regional water and/or environmentally-themed festivals and events each year. PDE evaluates public event participation requests and selects those that will result in reaching a large number of people in key geographic locations, allowing PDE to customize a targeted message that will resonate with the event's theme, location and anticipated audience. PDE also cultivates new and existing partnerships to directly deliver and/or sponsor events (and other outreach programs). These events provide an initial entry for PDE to engage new people in its work in the Estuary.
Implementers, Partners and Their Role(s)	PDE's Outreach Program Specialist identifies, evaluates, selects and coordinates other PDE staff and volunteers as needed to participate in public events, under the direction of PDE's Director of Outreach.
Outputs/Deliverables	<ul style="list-style-type: none">• Participation in 8 or more events, including 1-2 PDE-organized events (including PA Coast Day, Wilmington Earth and Arbor Day festival and sponsorship of DE Coast Day).• Exposure to 38,000 people via events.
Estimated	<ul style="list-style-type: none">• Events calendar developed by March 2020.• Participation in 12 or more events, focused heavily on spring events such as



Milestones/Timeline	Philly Science Festival and NJ Shad Festival, and fall events such as DE Coast Day. • Tracking/evaluating results in December.	
Estimated Budget	\$25,957 (E&O staff support of \$12,957; various staffers to assist with Delaware Estuary events and festivals at \$10,500; travel to/from event programs of \$2,500)	
Long-term Outcomes	Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries (Strategic Plan Goal 2).	
CWA core program(s) the project supports <i>Topics covered at public events can support any/all of these, but typically focus on nonpoint source pollution and protecting key resources like wetlands and coastal waters.</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large Aquifer Ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	PDE works with partners to directly plan, organize, and host several educational public outreach events each year that are funded through non-NEP sources. These change periodically, but have recently included Pennsylvania Coast Day and Wilmington Earth and Arbor Day, which are expected to be held in 2019 and 2020.	

CCMP Goal Area & Strategy	<p>Clean Water Goal 1: Reduce Nutrient Pollution and its Impacts Strategy W1.4: Provide outreach and information to property owners to assist in reducing non-point sources of nutrients;</p> <p>Clean Water Goal 2: Reduce Other Pollutants and their Impacts Strategy W2.1: Conduct outreach and technical assistance programs to reduce non-point sources of contaminants;</p> <p>Strong Communities Goal 1: Increase Community Resilience and Access Strategy C1.2: Provide tools and technical assistance to waterfront communities & partners to improve economic and environmental resilience, and Strategy C1.4: Connect people to natural areas and waterfronts in the Delaware Estuary;</p>
--------------------------------------	--



	Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement Strategy C2.3: Develop and promote programs that engage teachers and schools in stewardship of the Delaware Estuary
Project/Activity Name	Cultivate and promote new and existing educational partnerships, programs, and materials to address CCMP actions (ongoing)
Project/Activity Objective	Increase stewardship and community resilience; decrease non-point source pollution; advance CCMP implementation among local partners; investigate opportunities to increase citizen involvement in PDE/DELEP decision making, begin assessing PDE/DELEP work as it relates to Environmental Justice through the initiation of staff training and partner communication.
Project/Activity Description	<p>PDE Education & Outreach staff will continue to work with partners to develop a wide range of programs, activities, and materials designed to reach, engage, and inform the public about the Delaware Estuary, and engage them in implementing actions in the CCMP, particularly focused on preventing non-point source pollution, holding aquatic debris removal events, and increasing community resilience and stewardship of key habitats and living resources. PDE participates in a variety of local and sub-watershed partnerships including the South Jersey Bayshore Coalition, Christina Basin Clean Water Partnership/Task Force, Camden Collaborative Initiative, Urban Waters Federal Partnership, and Schuylkill Action Network to promote and provide local stakeholder input into PDE's programs and projects. The programs and educational activities developed and/or promoted through these partnerships vary from cleanups to workshops to community planning. Staff will engage the services of an Environmental Justice expert to provide staff training and begin to gather information about what other organization's are going to address the complex issue of Environmental Justice in their work. Staff will also begin investigating ways to engage more citizens in PDE decision making and CCMP implementation. This process will begin with staff researching what NEP's of similar size and scope to PDE are currently doing, as well as what other nonprofits in our region are doing to engage citizens, including research into virtual meetings, etc. NEP funds are used to develop these partnerships and programs, which often lead to more extensive initiatives funded through other sources and partners.</p>
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE's Director of Outreach is responsible for cultivating new and existing partnerships for educational initiatives to address CCMP action items and provide oversight and guidance to PDE's outreach staff. • PDE's Outreach Program Specialist is responsible for coordinating programs for teachers, classrooms, and volunteers. • PDE's Outreach Specialists and Watershed Planning Coordinator utilize their participation in local and sub-watershed partnerships to promote and provide local stakeholder input into PDE's programs and projects, as well as identify new project opportunities.



	<ul style="list-style-type: none"> Dozens of partner organizations in these (and other) sub-watershed collaborations provide PDE with local input on programs/projects, and partner with PDE to deliver projects and programs locally. In 2019, PDE will continue to seek new sources of funding for outreach and volunteerism as part of the shell recycling program (see Regional Restoration section of Work Plan).
Outputs/Deliverables	<ul style="list-style-type: none"> Develop/maintain partnerships with agencies/organizations for conducting educational outreach campaigns in 2020 and beyond with additional leveraged resources. Conduct outreach to classrooms (or referrals, where possible) and to teacher organizations to develop and strengthen educational partnerships, including participation in PDE's teacher trainings, tracking results (participation, evaluation). Hold and promote activities to engage citizen scientists and volunteers, such as freshwater mussel workshops, cleanups, and shell recycling/bagging, tracking results (participation, data). Strengthen, expand and track the results of subwatershed collaborations to: <ul style="list-style-type: none"> Advance and promote water quality improvements in major water resource areas like the Schuylkill River Watershed and Kirkwood-Cohansey (SAN, DRWI clusters) Advance and promote climate change adaptation and environmental justice utilizing the Urban Waters Federal Partnership (Climate Change Roundtable / CoP, CUSP, RASCL). Begin research into possible options and formats to increased citizen involvement Work with consultant to provide PDE staff training, and begin assessing Environmental Justice as it relates to PDE's work.
Estimated Milestones/Timeline	<ul style="list-style-type: none"> Summer teacher trainings. Spring cleanups. Regular meetings of sub-watershed partnerships (most quarterly). Shell recycling volunteer trainings and opportunities. Annual meeting of the Climate Adaptation Outreach Roundtable. Tracking of results in December.
Estimated Budget	\$49,479 (staff support at \$46,979 and educational program travel at \$2,500)
Long-term Outcomes	<ul style="list-style-type: none"> Encourage targeted behavior changes that can reduce pollution entering local waterways and improve community resilience (Strategic Plan Goal 2. Objective 2.2). Increase the preparedness of coastal communities to adapt to climate change and/or sea level rise (Strategic Plan Goal 2. Objective 2.1). Facilitate collaborative problem solving on key issues and in key areas and sub watersheds (Strategic Plan Goal 2. Objective 2.4). Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal



	1.Objective 1.3).	
CWA core program(s) the project supports <i>Reducing non-point source pollution is a major focus of these education and outreach programs, along with promoting and raising awareness about the National Estuary Program</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	<p>Extensive initiatives resulting from PDE's use of NEP funds to develop partnerships and programs in sub-watersheds are funded through non-NEP sources, most notably work in the Schuylkill River Watershed and the Kirkwood-Cohansey aquifer/Delaware Bayshore area of southern NJ. Within the Schuylkill Action Network (SAN) area, PDE coordinates the efforts of more than one hundred partners to promote and implement BMPs for water quality improvement, thanks to support from the Philadelphia Water Department. Portions of the Schuylkill River Watershed and southern New Jersey underlain by the Kirkwood-Cohansey aquifer are part of the William Penn Foundation's (WPF) Delaware River Watershed Initiative (DRWI), which provides funding to PDE and others for collaborating on water quality improvement projects. Funding was received from WPF in early 2018 to support three years of this work, which will continue into 2020.</p>	
	<p>PDE also has ongoing partnerships with Philadelphia Water Department (PWD), SUEZ, the City of Wilmington, the State of Delaware, and others, for educational initiatives to reduce nonpoint source pollution through activities that are not NEP funded. These support efforts include clean water drawing contests for children, dog waste pollution prevention campaigns and contests, storm drain markings and awareness campaigns, teacher trainings, and coordinated regional cleanup efforts like the Christina Cleanup, Schuylkill Scrub, South Jersey Scrub (started in 2018).</p>	
	<p>Over the last several years, PDE has had a number of partnerships aimed at providing technical assistance to local communities for climate adaptation planning supported by funds other than NEP. In 2017, PDE built new relationships with the Climate and Urban Systems Partnership in Philadelphia (CUSP/Franklin Institute) and the DuPont Nature Center at Mispillion Harbor Reserve for creating new interactive outreach materials/displays related to climate change, and expect to see other similar new opportunities in the</p>	



	future.
--	---------

CCMP Goal Area & Strategy	Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement Strategy C2.1: Through marketing and communications, build awareness and brand for the Delaware River and Bay, Strategy C2.4: Develop and promote programs with local communities and partners that foster volunteer stewardship and experiential learning, and Strategy C2.5: Publish and share outreach materials and scientific results	
Project/Activity Name	Publications, website downloads, and storm drain marking supplies (ongoing).	
Project/Activity Objective	Provide the public with easy access to information and resources about the Delaware Estuary.	
Project/Activity Description	PDE provides the public with information and resources via a variety of means including, but not limited to, increasing the use of its website for downloading publications and other materials. PDE's website is fully smart phone and tablet accessible, allowing people to access and download information, both from PCs and mobile devices. PDE also uses a variety of social media formats to reach a broader audience. These outlets include Facebook, Instagram, Twitter, Flickr, LinkedIn, and YouTube. PDE has increased its focus on social media promotion. NEP funding provides support for these services and, as need, to produce new or revised publications. (Staff time associated with this service is also NEP-funded, and is accounted for in the previous section.)	
Implementers, Partners, and Their Role(s)	PDE's Education and Outreach staff share responsibility for responding to requests for information, producing new materials (usually in concert with new educational programs/initiatives), making them available on the web, and tracking materials distributed and downloaded.	
Outputs/Deliverables	<ul style="list-style-type: none"> • More than 4,500 web downloads of materials. • One or more new PDE-specific publications. • More than 145,000 pieces of literature/materials distributed. • 10 social media posts per week 	
Estimated Milestones/Timeline	Distribution and downloads tracked annually in December.	
Estimated Budget	\$5,000 (contractual costs for design, printing, postage, and social media)	
Long-term Outcomes	Individuals, communities, and key stakeholders engaged in improving the health of the Estuary and its tributaries (Strategic Plan Goal 2).	
CWA core program(s) the project supports	(1) establishing water quality standards	X
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	X



<i>Requests for information and publications can include any/all of these topics</i>	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	X
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	PDE works with partners to develop and produce informational and educational materials. For example, PDE produced a Homeowners' Guide for storm water management with support from Philadelphia Water Department to help homeowners reduce stormwater run-off onto their property. Support from local partners allowed us to print additional copies for distribution to specific communities.	
	Storm drain marking, part of PDE's outreach work, is non-NEP funded (except for staff time to fulfill storm drain marking material requests that may come through the website). PDE provides storm drain marking kits to Philadelphia neighborhoods, thanks to support from PWD. Additionally, PDE has installed large street art "stickers" to raise public awareness about storm water pollution. This program was extended to Wilmington neighborhoods in 2018, thanks to funding from the City of Wilmington. Storm drain marking kits are available to municipalities outside of Philadelphia by bulk ordering to receive discount pricing. PDE is partnering with several organizations in Philadelphia to serve as distribution centers for the storm drain marking kits. PDE will coordinate inventory and provide training to their staff on usage of Philadelphia's new storm drain marking mobile app.	



C. MARKETING & COMMUNICATIONS INITIATIVES

NEP Program Implementation & Reporting: Outreach and Public Involvement

Marketing and Communications are critical elements of Outreach and Public Involvement given the size of the Delaware Estuary study area (over 6,000 square miles) and its population. Since establishing a position dedicated to Marketing and Communications in 2005, PDE has worked hard to expand its presence in the tri-state watershed area for greater impact. NEP funding will be used in FY20 to provide staff salary support for the Marketing and Communications Manager for implementing these activities under the leadership of the Director of Outreach. Both will play a central role in working with PDE Board members and DELEP partners to implement elements of the marketing and communications strategy including rollout of the new revised CCMP in early 2019. NEP funding will provide contractual funds for ongoing maintenance and hosting of the website, as well as newsletter production. Travel funds are budgeted here to cover travel related expenses by the Marketing & Communications Manager and/or Director of Outreach to attend local and regional meetings/conferences related to these activities. Specific program activities/areas to be supported include:

CCMP Goal Area & Strategy	Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement Strategy C2.1: Through marketing and communications, build awareness and brand for the Delaware River and Bay
Project/Activity Name	PDE Website Operation & Maintenance (ongoing)
Project/Activity Objective	To disseminate information on PDE programs, projects and resources in the Estuary via the web.
Project/Activity Description	DelawareEstuary.org has become a critical tool for PDE's communication to stakeholders and partners. In 2018, PDE had approximately 45,000 visits and unique visitors to the site. This main PDE website is used to transmit critical PDE and DELEP information, provide valuable educational resources to key audiences, and relay the latest in project information to partners and interested stakeholders, including information and links to ecotourism opportunities. NEP funds support the staff time and basic web hosting required to keep the website functioning and its content fresh and robust. In 2020, some of this effort will be directed to enhancing content on PDE's website, promoting PDE and DELEP programs, events and activities, and incorporating new branding guidelines into outreach materials.
Implementers, Partners, and Their Roles	PDE's Marketing & Communications Manager is primarily responsible for maintaining website operations and content.
Outputs/Deliverables	<ul style="list-style-type: none">• www.DelawareEstuary.org maintained with high visitorship (over 100,000 visits) and downloads (over 10,000).
Estimated	<ul style="list-style-type: none">• Monthly updates to content.



Milestones/Timeline	<ul style="list-style-type: none"> Year-end reporting on visitorship and content. 	
Estimated Budget	\$12,363 (Staff support of \$10,363 and contractual support of \$2,000 for website hosting/maintenance)	
Long-term Outcomes	<ul style="list-style-type: none"> Build affinity for the tidal Delaware River and Bay and its major tributaries (Strategic Plan Goal 2. Objective 2.3). Build PDE's and the Estuary's brand locally, regionally, and nationally (Strategic Plan Goal 3. Objective 3.3). 	
CWA Core Program(s) the Project Supports <i>Website topics could include any of these, but most likely focus on 4-6</i>	(1) establishing water quality standards	X
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	X
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	X
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	In addition to the website deliverables detailed above, PDE has received support from the State of Delaware through DNREC to support the maintenance of EcoDelaware.com, a companion site to DelawareEstuary.org aimed specifically at promoting ecotourism in Delaware. We anticipate additional funding from DNREC in 2019-2020 for updates to the ecoDelaware.com website to update both website content and format. EcoDelaware had over 11,000 visitors in 2018, with similar results anticipated in 2019-2020.	

CCMP Goal Area & Strategy	Strong Communities Goal 1: Increase Community Resilience and Access Strategy C1.2: Provide tools and technical assistance to waterfront communities & partners to improve economic and environmental resilience
Project/Activity Name	Media Outreach and “Estuary News” Newsletter (ongoing, with new issues/content quarterly)
Project/Activity Objective	To disseminate information on PDE programs, projects and resources in the Estuary in print, via email, and through the press.
Project/Activity Description	NEP funding support will enable PDE to develop/maintain a tri-state watershed relationship with media and employ a publicity strategy that focuses on present projects/activities and includes news conferences,



	<p>packets, and releases. It will also be used to produce and distribute the PDE newsletter, <i>Estuary News</i>, an important outreach tool that reaches 24,000 people in a large and diverse estuary watershed. Winter and summer print issues are mailed to roughly 21,000 subscribers and an additional 2,700 are made available to readers via distribution points. Spring, fall, winter and summer E-news issues are emailed to close to 7,400 people. Print issues are sent to points of distribution such as the Smyrna Rest Stop, Children's Beach House, Cape May Lewes Ferry, and Independence Seaport Museum where they reach an even broader audience. Newsletters are also distributed at meetings, conferences, and events attended by PDE staff throughout the year. Additional email blasts between newsletters are used to promote specific PDE projects and events.</p>	
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> • PDE's Marketing & Communications Manager is primarily responsible for planning, collecting, and editing content as well as overseeing production of the newsletter and conducting media outreach, with input and oversight from the PDE Executive Director, Director of Outreach and other staff as needed. • A variety of partners and experts from around the Estuary region serve as authors for <i>Estuary News</i> articles. 	
Outputs/Deliverables	<ul style="list-style-type: none"> • Two print issues of <i>Estuary News</i> produced and distributed by mail to approximately 23,000 people and emailed to approximately 7,000 people. • Print issues are distributed through placement at approximately 10 locations throughout the estuary, and at estuary events throughout the year. • 4-6 additional email blasts promoting Estuary events/resources. • 100+ media hits. • 1-2 press events per year. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Print issues of <i>Estuary News</i> in Winter and Summer focus on topical themes. • E-news issues in Spring and Fall focus on PDE and partner activities, with additional email blasts in between. • Quarterly press reports to Board/EIC. 	
Estimated Budget	\$68,417 (Staff support of \$27,417, contractual of \$39,000 for printing, design, and postage, and \$1,000 for media outreach travel)	
Long-term Outcomes	<ul style="list-style-type: none"> • Build affinity for the tidal Delaware River and Bay and its major tributaries (Strategic Plan Goal 2. Objective 2.3). • Build PDE's and the Estuary's brand locally, regionally, and nationally (Strategic Plan Goal 3.Objective 3.3). 	
CWA Core Program(s) the Project Supports	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	



<i>Newsletter and media outreach topics could include any of these, but most likely focus on 4-6</i>	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Funding Sources	In addition to the quarterly newsletters and email blasts, PDE uses additional email blasts and social media posts to promote PDE projects and programs, often using PDE operating funds or project funds from other sources. PDE is becoming increasingly strategic in its use of social media to coordinate the timing of programmatic activities, issues in the watershed, and website content.	
	PDE has received support from the State of Delaware through DNREC for media outreach and <i>Estuary News</i> distribution and anticipates receiving funding in 2020.	



D. COORDINATION OF SCIENCE AND MANAGEMENT NEEDS

Ecosystem Status and Trends: Research, Assessment, Monitoring & Reporting

Due to the multiple jurisdictions of the Delaware Estuary, and the resulting fragmented nature of research, assessment, monitoring and reporting here, PDE's role in coordinating science and management needs is essential. NEP funding will be used in FY20 to provide staff salary support for the Senior Science Director and Science Programs Manager, as well as for related office and project services and supplies, including contractual services and supplies for supporting operation of DELEP's Science and Technical Advisory Committee (STAC). Implementation of science projects that fill vital knowledge gaps will be another priority (which PDE can use to leverage additional project funds from other sources). Travel funds are budgeted to cover travel related expenses by PDE science staff to attend local, regional, and national meetings/conferences in support of these activities. Planning for the 2021 biennial Delaware Estuary Science & Environmental Summit (Summit) by PDE staff and the STAC will occur. PDE science staff will continue to work with the STAC and other partners to plan future scientific conferences that address NEP monitoring and science coordination needs. Specific program areas/activities to be supported include:

CCMP Goal Area & Strategy	Strategy: All
Project/Activity Name	Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management (ongoing)
Project/Activity Objective	Sustain the STAC, regular science conferences/workshops, and other scientific partnerships to facilitate regional collaborations/sharing and to provide technical support and input to the Management Conference and PDE's projects and programs
Project/Activity Description	The STAC is the principal technical workgroup for PDE and DELEP and has been operational since 2006. The STAC reports to the EIC and provides peer review and support for all NEP technical products, while also servicing the wider science and management community by drafting periodic scientific briefs on topics of broad interest. Members of the STAC and subgroups participate voluntarily, and their contributions are an important source of in-kind support for PDE's programs. A critical role played by PDE's Senior Science Director is utilizing relationships with STAC members and others in the scientific community to build partnerships for developing and carrying out successful science-based activities for improving the Estuary, and promoting the work of PDE and its partners. Such efforts have led to PDE's most successful projects that are built and advanced through a combination of ongoing meetings/communications with key partners, participation in advisory committees and workgroups, presentations at meetings, events, and conferences to engage new people and support, and the development of new project/program proposals. The STAC and core science staff plan to host the biennial Summit that is being held in January 2021. Additional areas of focus for advancing science programs/partnerships in 2020 will be further planning of the mussel production hatchery in Philadelphia, developing and



	testing new planning and monitoring tools for coastal preparedness projects, and engaging students and interns in research to advance the science related to key resources/issues in the Estuary.
Implementers, Partners, and Their Roles	<ul style="list-style-type: none"> • PDE's Senior Science Director is primarily responsible for coordinating and utilizing the STAC and other workgroups, identifying emerging scientific needs, and designing and managing science programs and partnerships to fill knowledge gaps, with assistance from other PDE staff as needed. • PDE's Science Programs Manager serves as an alternate for the Senior Science Director on regional technical committees and works to support the operational needs of the STAC, while also coordinating daily staffing and management of PDE's scientific projects. • The STAC Chair (currently Dr. Sue Kilham from Drexel University) leads meetings and works with PDE to set agendas. • STAC members include representatives from PDE's agency partners, as well as elected members from business, industry, academia, and non-profit partners, who attend meetings and contribute expertise and input. • Partners such as the Philadelphia Water Department, Academy of Natural Sciences of Drexel University, Barnegat Bay Partnership, The Nature Conservancy New Jersey Chapter, and Rutgers University Haskin Shellfish Laboratory (along with many other current and new partners) routinely work with PDE staff to address core scientific priorities of the NEP, such as monitoring, research and restoration of key resources (e.g., shellfish, coastal wetlands) and enhancing ecosystem services that benefit people (e.g., coastal preparedness, water quality).
Outputs/Deliverables	<ul style="list-style-type: none"> • At least three STAC meetings per year, including one with the EIC to exchange key information and discuss emerging needs/opportunities; and one with the MACC to review/update monitoring plans for the Estuary. • Quarterly STAC reports at EIC meetings, including one on monitoring plans/activities and the occasional white paper / brief / presentation on a key topic. • Plan for the 2021 Summit, with STAC and partner input. • Maintain/grow three or more scientific partnerships resulting in new projects/proposals developed in 2020. • More than 10 scientific presentations (seminars, keynotes, conferences) by staff on priority topics and other scientific findings. • Participation in meetings, advisory committees, news conferences, and other events by staff to promote the program and advance its goals (12+ meetings per year).
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Fall joint meeting with the EIC and report/presentation to Steering Committee. • Winter/Spring joint meeting with the MACC and STAC, followed by monitoring plan report to the EIC.



	<ul style="list-style-type: none">Regional/national meeting/conference participation in spring and fall.Development of Summer field work plan in March.Budgeting and work planning for 2020 beginning in September 2019	
Estimated Budget	\$77,446 (Staff support of \$68,446, contractual of \$5,000 for sub-awards to STAC or other experts, and \$4,000 for Science program travel).	
Long-term Outcomes	<ul style="list-style-type: none">Coordinate science activities for improved management of the Estuary's natural resources (Strategic Plan Goal 1. Objective 1.4).Advance scientific knowledge and its use for improved management of the Estuary's natural resources (Strategic Plan Goal 1.Objective 1.5).	
CWA Core Program(s) the Project Supports <i>An active and engaged STAC and partners support all of these</i>	(1) establishing water quality standards	X
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	X
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	X
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	PDE currently is part of a working group called the Aquatic Research and Restoration Center that promotes bivalve shellfish for use in restoration projects aimed at enhancing water quality. For 2020, PDE will continue to expand on our propagation techniques at the Fairmount Demonstration Hatchery in preparation for the larger scale propagation planned with the assistance of funding from PennVest. PDE will engage partners from around the region to coordinate and prioritize research and restoration questions and build consensus on the needs of the region.	
	PDE's science staff increasingly is taking advantage of opportunities to develop and implement new citizen science programs, e.g. exploring funding for citizen science monitoring of living shoreline (LS) projects. Funding typically ends when the implementation grants end. LS can take 5 or more years to mature. Citizen scientists could potentially fill a vital need for more prolonged monitoring.	

CCMP Goal Area & Strategy	Strategies: All
Project/Activity Name	Coordination of NEPORT Data Collection and Reporting, and Tracking of Implementation of the Revised Comprehensive Conservation and Management Plan (CCMP)



Project/Activity Objective(s)	Collect, compile, and submit GPRA leveraging and habitat project information via the NEPORT system, and provide leadership and coordination for tracking of the revised CCMP to meet NEP requirements.	
Project/Activity Description	PDE collects data on projects for the annual GPRA process from its various activities and core partners, compiles and enters that data into the NEPORT system, as required by EPA. In addition, in 2020 PDE will coordinate tracking of the revised CCMP using that process. PDE continue to address particular need identified in the revised CCMP (engagement of underserved communities) with a workgroup.	
Implementers, Partners and Their Role(s)	<ul style="list-style-type: none"> • PDE's Science Planning Coordinator will continue to provide staff support for CCMP tracking, and will also coordinate NEPORT tasks and assist with EIC, STAC and monitoring coordination needs. • PDE's Science Technical Specialist will provide data analysis and mapping support. • The DELEP Management Conference, and particularly the EIC, will participate in meetings and calls and provide expert input and assistance for tracking the revised CCMP, with the Steering Committee providing high level oversight and guidance. • PDE staff and the EIC will work with a consultant to address strategies in the revised CCMP related to the engagement of underserved communities. 	
Outputs/Deliverables	<ul style="list-style-type: none"> • GPRA data collected from partners, compiled, and reported on (in NEPORT) to meet 1,500 habitat acre goal and continue revised CCMP tracking. • Continue workgroup to develop strategies and resources for engagement of underserved communities. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • GPRA data collection June-August; data entered into NEPORT by August 31; comments and questions from EPA addressed by September deadline. • Presentation of GPRA and CCMP tracking results for discussion at fall EIC meeting. • Hold first meeting of new workgroup mid-year. 	
Estimated Budget	\$67,337 (Staff support of \$61,337, contractual of \$5,000 for consultant on underserved communities, and travel of \$1,000)	
Long-term Outcomes	<ul style="list-style-type: none"> • Strengthen the framework for shared leadership and responsibility, which transcends geography, jurisdiction, and economic sector (Strategic Plan Goal 3. Objective 3.2). • Support the revised CCMP to guide PDE and its Estuary Program partners' activities over the next 10+ years. 	
CWA core program(s) the project supports	(1) establishing water quality standards	X
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	X
	(3) permitting discharges of pollutants from point sources	X
<i>A revised CCMP is</i>		



<i>required by the National Estuary Program and will include actions that address most, if not all, of these other core programs</i>	(National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting large aquifer ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	NA – This work is entirely covered by NEP funding	

CCMP Goal Area & Strategy	Healthy Habitats Goal 1: Prevent Wetlands Loss Strategy H1.1: Establish clear baselines for tidal wetland conditions and track changes over time
Project/Activity Name	Science Project Coordination (ongoing, with new projects each year)
Project/Activity Objective	Manage PDE science projects to collect, synthesize, and utilize data on key habitats (tidal wetlands) and species (mussels, oysters) to improve scientific understanding, coordination, management and restoration of these resources.
Project/Activity Description	PDE is directly engaged in a number of science projects that fill critical information and/or tool gaps in the Delaware Estuary that will continue into 2020, including the Mid-Atlantic Coastal Wetland Assessment (MACWA) program and the Freshwater Mussel Recovery Program (FMRP), which seeks to advance the science of freshwater mussels, including propagation, reintroduction, and studies of the water quality benefits and outcomes of investments in mussel bed restoration. PDE science staff participates in the Monitoring Advisory and Coordination Committee (MACC) and Toxics Advisory Committee (TAC) coordinated by the Delaware River Basin Commission (DRBC), the Regional Sediment Management Workgroup (RSMW), and the Oyster Restoration Task Force (ORTF). NEP funds are used to provide basic staff coverage to strategize and build support and funding for these science programs that address interstate priorities, resulting in significant leveraging of larger amounts of funding from other sources for full implementation, and communication of results through the web, meetings, conferences, and partnerships.
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> PDE's Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement PDE science projects and programs, working with PDE's Wetland Coordinator and Shellfish Coordinator under the guidance of the Senior Science Director. The Barnegat Bay Partnership and Academy of Natural Sciences of Drexel University (ANS) are key partners for implementing MACWA.



	<ul style="list-style-type: none">• ANS, US EPA Region III, and the Philadelphia Water Department are key partners for conducting freshwater mussel surveys, reintroductions, and propagation in support of regional restoration of shellfish.	
Outputs/Deliverables	<ul style="list-style-type: none">• Expanded surveys and transplants of freshwater mussels, to new streams or ponds, and engagement of volunteers resulting in new data collected/analyzed.• Continued monitoring at MACWA long-term monitoring stations, with new data collected/analyzed.• Perform research to better understand how wetlands may or may not transgress in light of sea level change.• Reports/presentations and website updates sharing/promoting results.• Understand better the role of freshwater and marine mussel beds in sustaining water quality and removing nutrient pollutants.• Enhanced understanding of mussel habitat requirements that improves living shoreline designs.• Participating in NJ oyster stock assessment workshop in February.	
Estimated Milestones/Timeline	<ul style="list-style-type: none">• Field data collection Spring-Fall.• Data analysis & reporting in Winter.	
Estimated Budget	\$37,470 (Staff support of \$35,470 and science project travel of \$2,000)	
Long-term Outcomes	<ul style="list-style-type: none">• Improved health and sustainability of wetlands for clean water, healthy habitat, community resilience (Strategic Plan Goal 1. Objective 1.1).• Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2).• Advance science for improved management of the Estuary (Strategic Plan Goal 1.Objective 1.5).	
CWA Core Program(s) the Project Supports <i>Implementation of MACWA supports 5 and implementation of FMRP supports 4 and potentially 2; both support 6</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	X
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Funding Sources	The above deliverables rely on leveraging additional funds for MACWA and FMRP science efforts in 2020. Over the last ten years PDE has brought in over \$2,500,000 in funding and match for the implementation of MACWA. With the assistance of our partners we hope to continue this trend in bringing resources to the region to better understand and track our wetlands. FMRP	



	<p>will continue to grow through the Mussels for Clean Water Initiative and the building of the hatchery, and the exploration of the data and research questions needed to make the hatchery successful.</p>
	<p>With non-NEP leveraged funding, PDE continues to develop new data products, tools, and management decision frameworks related to coastal wetland restoration with support from funders such as EPA HQ, NJDEP and EPA Region II Wetland Program Development Grants. PDE will be working on translating data from the MACWA program and continue to find new and innovative ways to translate the data to the public. PDE will also continue to focus on understanding how wetlands will move upland in the face of sea level rise, as well as understanding the impact of groundwater run off on local wetlands.</p>



E. REGIONAL RESTORATION INITIATIVES AND PROJECTS

Ecosystem Status and Trends: Research, Assessment, Monitoring & Reporting

Under the guidance of the Senior Science Director, PDE will continue to provide dedicated science and restoration staff support for the conceptualization, implementation, and performance monitoring of restoration projects that enhance high priority natural infrastructure and ecosystem services. In addition to PDE-led restoration projects and associated scientific studies, PDE staff also furnish technical assistance to partners and stakeholders for their “on-the-ground” restoration/enhancement projects, and guide coastal managers on how to use scientific data and tools to match best interventions that address site-specific vulnerabilities. NEP funding will be used in 2020 to provide salary support for the Restoration Programs Manager and Habitat Project Specialist to develop and implement such projects and programs, including PDE’s Delaware Estuary Living Shoreline Initiative (DELSI), training partners on use of the “Marsh Futures” coastal resilience planning tool, project monitoring framework, and advancing diverse water quality improvement projects with corporate, community, and Watershed partners. Specific program areas/activities to be supported include:

CCMP Goal Area & Strategy	Healthy Habitat Goal 1: Prevent Wetlands Loss Strategy H1.3: Develop and implement natural and nature-based techniques to stabilize and restore eroding shorelines, and to build and protect wetlands, infrastructure, and other key resources, and Strategy H1.4: Protect, enhance, and improve non-tidal wetlands Healthy Habitat Goal 2: Stem Forest Loss Strategy H2.2: Promote stewardship practices by local partners for the health and sustainability of forests for water quality Clean Water Goal 1: Reduce Nutrient Pollution and Its Impacts Strategy W1.2: Support innovative planning and design practices to reduce nutrients from stormwater and agricultural runoff through promotion, education, and implementation Clean Water Goal 3: Sustain Flow for Drinking Water and Ecosystems Strategy W3.2: Conduct research and monitoring on water quality and habitat requirements of estuary dependent species
Project/Activity Name	Restoration Project Coordination (ongoing, with new projects each year)
Project/Activity Objective	To advance the use of best management practices for protecting shorelines and wetlands, restoring freshwater and marine shellfish beds, and addressing water quality impairments throughout the tidal Estuary.
Project/Activity Description	PDE is directly engaged in a number of restoration projects that test and demonstrate best practices for protecting and restoring key resources of the Estuary, including tidal wetlands, shellfish (mussels and oysters), and water quality in rivers and streams (by reducing pollutants in runoff). These efforts



	<p>will continue in 2020, with new research on how to enhance ecosystem services and water quality outcomes at various project sites installed as part of PDE's Delaware Estuary Living Shoreline Initiative. PDE also intends to expand its technical assistance to corporate, community, and/or sub-watershed partners for planning and implementing new living shorelines in urban landscapes, as well as new projects to address stormwater runoff, such as rain gardens and riparian buffers. PDE co-chairs the DE Living Shoreline Committee (DELSIC) and New Jersey's Coastal Resiliency Collaborative, and routinely is called upon to advise states and federal agencies on their restoration needs, designs and monitoring tactics. NEP funds will provide basic staff coverage to continue advancing these restoration projects/programs under the Regional Restoration Blueprint, continuing the shell recycling program in support of living shoreline initiatives, leveraging larger amounts of funding from other sources for full implementation, and communicating results via meetings, conferences, electronic media, and partnerships.</p>
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> • PDE's Restoration Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement PDE restoration projects, working with PDE's Habitat Project Coordinator and other staff as needed. • Rutgers University Haskin Shellfish Research Laboratory, The Nature Conservancy New Jersey Chapter, and the states of DE and NJ are key partners for the Delaware Estuary Living Shoreline Initiative. Rutgers also leads the Delaware Bay Oyster Restoration Task Force. • Local partners, including members of PDE's Corporate & Community Environmental Stewardship Program (CESP) and watershed collaborations like the Schuylkill Action Network (SAN) will plan and implement water quality and habitat improvement projects with PDE technical assistance.
Outputs/Deliverables	<ul style="list-style-type: none"> • Play a leadership role in Living Shoreline workgroups in DE and NJ to advance the use of living shorelines and other new wetland restoration tactics as an alternative to hardened structures, and in Camden and Philadelphia for adapting the use of living shorelines in freshwater urban environments to address environmental justice concerns. • Coordinate shell recycling initiatives. • Work with partners in the Delaware Bay Oyster Restoration Task Force to advance measurable goals for oysters and sustain shell recycling efforts.
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Project planning and reporting in Winter. • Monitoring various living shoreline (LS) projects such as Nantuxent and Matt's Landing (NJ), and Mispillion (DE) in spring and/or fall. • Presenting LS work at conferences such as the Atlantic Estuarine Research Society's meeting in Spring. • Assessing monitoring framework in the Fall and make edits -- presenting updated protocols and results at one conference.



	<ul style="list-style-type: none">Regular Workgroup meetings (approximately quarterly) including participating on state LS committees when requested.	
Estimated Budget	\$36,931 (Staff support of \$34,431 and \$2,500 for staff travel)	
Long-term Outcomes	<ul style="list-style-type: none">Improved health and sustainability of wetlands for clean water, healthy habitat, community resilience (Strategic Plan Goal 1. Objective 1.1).Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2).Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal 1.Objective 1.3).	
CWA Core Program(s) the Project Supports <i>Restoration projects and programs will most likely support core programs 4-7</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	PDE’s Corporate & Community Environmental Stewardship Program (CESP) has historically been a program focused on working with local corporate and government entities to implement water quality and habitat projects on their properties throughout the Estuary. Projects undertaken by CESP members include planning, implementation, and/or community outreach/education. Due to shifts in the needs of our corporate and government partners related to property management, PDE is revamping this program with input from current and past members, as well as other partners in the region. It is anticipated that in 2020 and beyond, a limited number of members will still engage in on-the-ground habitat or water quality programs.	
	PDE has partnered with NJDEP on several coastal resilience projects funded by National Fish and Wildlife Foundation and other sources. PDE has applied its monitoring framework to gauge performance of resilience projects implemented by others, used Marsh Futures tactics to identify new vulnerabilities, and guided managers on how to utilize scientific datasets for strategic planning. In 2020, PDE will continue to assist NJDEP in a new decision making process for selecting best restoration tactics and furnishing expert peer review.	
	The Schuylkill Action Students (SAS) program allows PDE and other partners in the Schuylkill Action Network to work with local schools and their	



	administrators, teachers, and students to implement projects to reduce storm water runoff and provide educational opportunities. PDE likely will complete 1-2 SAS projects in 2020 and conduct outreach to attract interested schools. In addition to these projects undertaken directly by PDE with local partners, PDE (and other leading members of the Schuylkill Action Network) participates in shaping and selecting grant awards for the Schuylkill River Restoration Fund, which has funded 73 water quality improvement projects (2.5 million) since its creation by the Schuylkill River Heritage Area in 2006. (This work is conducted with non-NEP funds mainly by PDE's Watershed Planning Manager, Watershed Planning Coordinator, and Schuylkill Action Network Coordinator.)
	In July 2019, PDE expects to once again receive funding from DNREC to undertake at least one habitat project in Delaware, with an anticipated completion date sometime before June 2020.
	PDE expects to continue identifying new project locations and preparing implementation concepts and proposals for nature-based restoration projects, including at new sites in DE, NJ, and PA. PDE will also explore ways to expand citizen science programming to help sustain long-term monitoring at restoration project sites.
	Using a combination of NEP and non-NEP funding, participate in the Urban Waters Federal Partnership as a means for tech transfer and advancing urban waterfront projects and goals for the Estuary.
	PDE has been developing new living shoreline tactics and is refining it's a new tool to assist managers and local communities in identifying high vulnerability marshes and planning appropriate wetland enhancement tactics. In 2020, PDE expects to continue to develop the decision tree to guide coastal managers in choosing appropriate sites for thin layer placement of dredged sediments, potentially saving money on dredge disposal while enhancing critical marshes (and avoiding potential impairment and costs by improper placement).

CCMP Goal Area & Strategy	Healthy Habitat Goal 1: Prevent Wetlands Loss Strategy H1.3: Develop and implement natural and nature-based techniques to stabilize and restore eroding shorelines, and to build and protect wetlands, infrastructure, and other key resources, and Strategy H1.4: Protect, enhance, and improve non-tidal wetlands
	Healthy Habitat Goal 3: Increase and Improve Fish and Shellfish Habitat Strategy H3.2: Restore oyster beds and productivity in and around the Delaware Bay Strategy H3.5: Manage and improve populations of rare, endangered, or otherwise important native species in the Delaware Estuary



Project/Activity Name	Oyster Shell Recycling (Ongoing)
Project/Activity Objective	To sustain the shell recycling program that helps address shell shortages in the Delaware Estuary, by diverting valuable shell from being landfilled, and build greater awareness for the importance of local shellfish as a key natural resource.
Project/Activity Description	The availability of oyster shell is a major constraint for sustainable oyster populations and health in Delaware Bay. Oyster (and other) shell is also vital for constructing living shorelines that promote coastal resilience and provide ecologically sound habitat. PDE and collaborating organizations are engaged in oyster restoration and shoreline stabilization projects that require the use of reclaimed oyster shell as a critical component of project design and construction. Shell provides habitat for oyster larvae to recruit onto, and bagged shell attenuates waves and stabilizes shorelines. Reefs and living shorelines constructed using recycled shell serve as essential habitat for a diverse array of fish and wildlife. Live oysters and mussels that recruit onto recycled shell promote cleaner water through substantial water filtration services. The Shell Recycling Program is designed to alleviate the shell shortage for such projects, while promoting diverse outreach and recycling programs in the Delaware Estuary and its immediate vicinity. PDE is directly engaged in a number of restoration projects that test and demonstrate best practices for protecting and restoring key resources of the Estuary using shell.
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> • PDE's Restoration Programs Manager is primarily responsible for overseeing the coordination of staff activities to implement and sustain, PDE's oyster shell recycling program, working with PDE's Habitat Specialist, Outreach Specialist, and other staff as needed. • Volunteers to assist with shell bagging activities.
Outputs/Deliverables	<ul style="list-style-type: none"> • Sustain shell recycling, curing, and bagging in northern Delaware (Wilmington), partnering with restaurants, and engaging volunteers. • Sustain shell recycling in other areas, such as Philadelphia, PA, Kent County, DE, and Camden, NJ. • Continue to develop and produce outreach materials to promote the oyster shell recycling program through restaurants and traditional and social media, and online. • Engage volunteers in shell bagging and other hands-on activities/opportunities.
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Project planning and reporting in Winter. • Participate in NJ oyster stock assessment workshop in February, and the Delaware Bay Oyster Task Force if/when it meets. • Provide annual updates on shell recycling statistics, shell availability, and projects benefitted at living shoreline workgroup meetings.
Estimated Budget	\$7,049 (Staff support of \$6,549 and travel of \$500)
Long-term Outcomes	<ul style="list-style-type: none"> • Improve the health and sustainability of wetlands for clean water, healthy habitat, community resilience (Strategic Plan Goal 1. Objective 1.1).



	<ul style="list-style-type: none"> • Restore shellfish to improve water quality, habitat, and community resilience (Strategic Plan Goal 1. Objective 1.2). • Facilitate partnerships and capacity-building to improve the health and sustainability of watersheds and waterfronts (Strategic Plan Goal 1. Objective 1.3). • Build affinity for the tidal Delaware River and Bay and its major tributaries. (Strategic Plan Goal 2. Objective 2.3). 	
CWA Core Program(s) the Project Supports	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	Additional funding will be sought to sustain this shell recycling area as well as launch into additional shell recycling areas. Sales of shell for appropriate projects in the Delaware Estuary will provide some income to help sustain shell recycling, but annual subsidies will be needed.	



F.DELAWARE ESTUARY SCIENCE AND ENVIRONMENTAL SUMMIT

Technical Assistance and Capacity-Building: Tools, Training, and Direct Assistance

Partnership for the Delaware Estuary, Inc. (PDE) will convene the 2021 Delaware Estuary Science and Environmental Summit in January, Cape May, New Jersey, drawing close to 400 science and environmental professionals from throughout the tri-state Delaware Estuary region. Attendees will participate in a three-day conference to exchange ideas and discuss a variety of topics. The Summit's theme is yet to be determined but likely to include topics such as wetlands research, habitat restoration, freshwater mussel restoration, oysters and other shellfish, conservation topics, trash free waters, environmental justice, and innovative methods for environmental education and outreach. The revised Comprehensive Conservation and Management Plan (CCMP) will be rolled out at the Summit. PDE will build on a successful track record and reputation for convening the Summit every 2 years from 2005 through 2019 (7 in all), and will continue to evolve programming to meet the needs of the Estuary and its partners. Specific program areas/activities to be supported include:

CCMP Goal Area & Strategy	All
Project/Activity Name	Delaware Estuary Science and Environmental Summit
Project/Activity Objective	To convene the 2021 Delaware Estuary Science and Environmental Summit as a means for stakeholder input and engagement and coordinating and advancing scientific knowledge for improved management and stewardship of the Delaware Estuary.
Project/Activity Description	PDE will host the 2021 Delaware Estuary Science and Environmental Summit. The goal is to attract 300 + participants. Session themes may include, but are not limited to, communicating science, ecological linkages, innovative outreach, living resources, monitoring and assessment, physical and chemical processes; restoration and conservation, water quality and quantity, wetlands and other habitats, and environmental justice. Additionally, special sessions may include climate resiliency research and projects, and other topics to be determined.
Implementers, Partners and Their Roles	<ul style="list-style-type: none">• Lead staff for planning and organizing the Summit are PDE's Director of Outreach and Senior Science Director, but all PDE staff play some role in planning, organizing, and supporting the Summit.• The STAC plays a critical role in planning the science content of the Summit and organizing/moderating science and restoration sessions.
Outputs/Deliverables	<ul style="list-style-type: none">• Hold the Delaware Estuary Science & Environmental Summit with a goal of 300 + participants.• Post program materials (including presentations) online @ delawareestuary.org.
Estimated	<ul style="list-style-type: none">• Securing date and location for 2021 Summit



Milestones/Timeline	<ul style="list-style-type: none"> • Begin planning and preparation for 2021 Summit. 	
Estimated Budget	\$5,000 (Contractual services)	
Long-term Outcomes	<ul style="list-style-type: none"> • Continuous improvement of the health of the Estuary through sustained momentum of current success science-based activities and new high-priority activities (Strategic Plan Goal 1). • Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries. (Strategic Plan Goal 2). 	
CWA Core Program(s) the Project Supports <i>This work has the potential to impact all of the core CWA programs.</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	<ul style="list-style-type: none"> • PDE anticipates a number of additional sponsors for the Summit, in keeping with past years, and in order to keep registration fees down. • The Summit also benefits from the in-kind contributions of DELEP and STAC members and other partners who moderate and present the sessions. 	



G. ADDENDUM – Urban Waters Ambassador

Partnership for the Delaware Estuary, Inc. (PDE) has been an active partner in the Urban Waters Federal Partnership in the Delaware Estuary since its inception. This partnership is focused on reconnecting urban communities, particularly those that are overburdened or economically distressed, with their waterways by improving coordination among federal agencies and collaborating with community-led revitalization efforts to improve our nation's water systems and promote their economic and environmental importance. The Urban Waters focus area in the Delaware Estuary Region consists of Chester, PA, Philadelphia, PA, Camden, NJ, and Wilmington, DE. In FY20, PDE will take a stronger leadership role in the partnership by establishing an Urban Waters Ambassador position to help support the Urban Partnership through coordination with partners, meeting planning and implementation, project tracking and other support services. The Ambassador will also provide support for Community Stewardship efforts in Urban Water Partnership Locations, including supporting community groups carrying out stewardship, public access, trash-free water education and citizen science projects in Chester, PA, Philadelphia, PA, Camden, NJ, and Wilmington, DE.

CCMP Goal Area & Strategy	All
Project/Activity Name	Urban Waters Ambassador
Project/Activity Objective	To build local capacity; expand partnerships; align Federal government programs and investment in these communities; and find innovative ways to communicate the environmental and economic potential of safe and clean Urban Waters.
Project/Activity Description	The Ambassador will work with the Federal partner agencies, led by EPA, USGS, and US ACE as well as local government representatives and local non-governmental organizations to identify priorities to support watershed revitalization through water quality improvements, ecosystem restoration, economic development, recreation, and environmental education.
Implementers, Partners and Their Roles	<ul style="list-style-type: none">• PDE will establish a staff position in the Education and Outreach team to serve at the Urban Waters Steward; other PDE staff may assist as needed.
Outputs/Deliverables	<ul style="list-style-type: none">• Deliverables will include a combination of public meetings, working group sessions, technical analyses, draft and final reports, and securing commitments from Partnership members to address the recommended set of actions.
Estimated Milestones/Timeline	Renewed commitment to a manageable set of priority projects as evidenced by updated and approved workplans ;
Estimated Budget	\$50,000 (Staff support and travel)
Long-term Outcomes	<ul style="list-style-type: none">• Individuals, communities, and key stakeholders highly engaged in improving the health of the Estuary and its tributaries. (Strategic Plan



	Goal 2).	
CWA Core Program(s) the Project Supports <i>This work has the potential to impact all of the core CWA programs.</i>	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	
	(3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permit)	
	(4) addressing diffuse, nonpoint sources of pollution	X
	(5) protecting wetlands	X
	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Funding Sources	<ul style="list-style-type: none"> TBD 	



VI. AREAS OF SPECIAL INTEREST FY20

A. Activities Supporting Climate Resilience

The findings in PDE's 2010 *Climate Change in the Delaware Estuary* study continue to guide all of PDE's climate adaptation work in the Delaware Estuary. PDE's FY20 Work Plan outlines additional programs and projects that support climate change resiliency as noted here:

Primary Climate Change Resiliency Activities

- ***Outreach to communities, collaborations, and decision-makers on key issues, with a focus on stormwater management BMPs, climate change adaptation planning, and PDE projects and needs*** - This work directly relates to both nutrient pollution reduction and climate change adaptation. PDE works with communities on storm water management and flooding issues (helping to address nutrient pollution impacts) and helps them deal with the impacts of climate change and sea level rise.
- ***Coordinating the PDE Science & Technical Advisory Committee (STAC)*** – DELEP's STAC is heavily engaged in climate adaptation efforts in the Delaware Estuary. Agendas and minutes from past STAC meetings can be found at <http://www.delawareestuary.org/science-and-technical-advisory-committee/>. This page also contains information about upcoming meetings and topics for discussion.
- ***Mid-Atlantic Coastal Wetland Assessment (MACWA)*** - PDE's Climate Change and Wetlands Assessment programs directly relate to addressing climate adaptation needs in the estuary. Our climate change work involves helping communities identify needs and options for dealing with climate change, sea level rise, and increased storm intensity. Wetlands assessment efforts help PDE track the current conditions of our wetlands and changes over time as compared to the baseline assessment.
- ***Living Shorelines*** - Living Shorelines address climate vulnerability and adaptation measures as well as nutrient removal. Living shorelines help protect eroding marshes from the effects of climate change, sea level rise, and increased storm intensity/frequency. The living shoreline also helps to filter water entering the waterbody, thereby reducing nutrient pollution. As funding and resources permit, PDE will continue training and coordination efforts currently underway, like training the contractors that property owners and managers rely on for advice and recommendations when faced with erosion, flooding, and other effects of coastal storms and sea level rise. PDE co-chairs the Delaware Estuary Living Shoreline Initiative Committee and the New Jersey Ecological Projects.
- ***Representing PDE on key scientific committees and at meetings/conferences*** - PDE's staff regularly participates in meetings and conferences related to climate change and nutrient pollution, learning from other experts as well as presenting PDE's work to others.
- ***Steering Committee, Estuary Implementation Committee Coordination, and CCMP Implementation*** - PDE works closely with the EIC to discuss many relevant issues, including the



latest needs and opportunities related to addressing climate change.

Climate Change Resiliency Supporting Activities

- ***Grant Writing and Management*** - Grant proposals and other funding requests typically include projects that address climate adaptation work, which is a primary focus of PDE's work in the Delaware Estuary.
- ***Teacher & Classroom Programs focus on providing teachers with trainings and resources for teaching about clean water and Estuary resources/concepts/issues*** - Climate change is a topic that is stressed during teacher trainings, and is included in other resources and materials provided to teachers throughout the year.
- ***PDE press releases, events, and topic/event specific e-blasts*** - PDE anticipates that at least some press releases and stories in 2020 will be directly connected to increasing awareness of climate change vulnerability and adaptation measures.
- ***Publishing and distributing Estuary News*** - PDE's *Estuary News* newsletter includes an article each year that highlights restoration projects completed through the Corporate and Community Environmental Stewardship Program (CESP), some of which have a clear link to climate adaptation.
- ***DelawareEstuary.org website upkeep and improvement*** - PDE's website contains a wealth of information regarding climate change, climate adaptation, nonpoint source pollution, and DELEP and PDE projects that address all of these important issues. There is a specific section dedicated to climate change and PDE's work in that area (<http://www.delawareestuary.org/understand-climate-change/>).



B. Activities Involving Nutrient Management and Control

Primary Nutrient Pollution Reduction Activities

- ***Implementation of and participation in educational and awareness-raising events across the Delaware Estuary (e.g., Coast Days)*** - Through PDE's participation in festivals and events throughout the region, staff is able to interact with local residents and inform visitors about nonpoint source pollution, rain barrels, rain gardens and other "Backyard BMPs" that homeowners and other property owners can undertake to reduce nutrient pollution.
- ***Outreach to communities, collaborations, and decision-makers on key issues, with a focus on stormwater management BMPs, climate change adaptation planning, and PDE projects and needs*** - This work directly relates to both nutrient pollution reduction and climate change adaptation. PDE works with communities on stormwater management and flooding issues (helping to address nutrient pollution impacts) and helps them deal with the impacts of climate change and sea level rise.
- ***Educational partnerships and programs to address CCMP priorities, specifically nonpoint source pollution*** - These programs, including storm drain markings, stream clean ups, rain garden workshops and installations, etc., directly impact nutrient pollution solutions through education and changing behaviors that cause nonpoint source pollution.
- ***Coordinating the PDE Science & Technical Advisory Committee (STAC)*** - PDE's STAC is heavily engaged in efforts to better understand and manage nutrient impacts in the Delaware Estuary. Agendas and minutes from past STAC meetings, along with information about upcoming meetings and topics for discussion can be found at:
<http://www.delawareestuary.org/science-and-technical-advisory-committee/>.
- ***Representing PDE on key scientific committees and at meetings/conferences*** - PDE's staff regularly participates in meetings and conferences related to climate change and nutrient pollution, learning from other experts as well as presenting PDE's work to others.
- ***Freshwater Mussel Recovery Program (FMRP)***- PDE's FMRP impacts nutrient removal in Delaware Estuary waterways. Where present, mussels filter a tremendous quantity of water in-stream and help improve in-stream water quality by removing nutrients and suspended solids.
- ***Corporate & Community Environmental Stewardship Program (CESP)*** - Numerous CESP projects - typically rain gardens, riparian buffers, and native plantings -- have nutrient pollution removal impacts. Project ideas are discussed with members each Spring/Fall.



C. Nutrient Pollution Reduction Supporting Activities

Nutrient Pollution Reduction Supporting Activities

- ***Grant Writing and Management*** - Grant proposals and other funding requests typically include projects that address nutrient pollution reduction work, which is one of PDE's primary focuses in the Delaware Estuary.
- ***NEPORT and CCMP Tracking and Data Management*** - PDE/DELEP's NEPORT and CCMP tracking often includes projects that deal with nonpoint source pollution removal (such as buffers), which helps address Nutrient Pollution Mitigation.
- ***Teacher and Classroom Programs focus on providing teachers with trainings and resources for teaching about clean water and Estuary resources/concepts/issues*** -Nutrient pollution is a topic that is stressed during teacher trainings. This topic is also included in other resources and materials provided to teachers throughout the year.
- ***Publishing and distributing Estuary News*** - PDE's *Estuary News* newsletter includes a minimum of two articles annually related to nutrient pollution, as well as what PDE is doing to help educate and inform local communities.
- ***DelawareEstuary.org website upkeep and improvement*** - PDE's website contains a wealth of information regarding climate change, climate adaptation, nonpoint source pollution, and PDE projects that address these important issues. There are numerous sections of the website with information about reducing nonpoint source pollution and nutrient pollution brochures are available for downloading in the publications sections of the PDE website at <http://www.delawareestuary.org/publications-2/>.
- ***PDE press releases, events, and topic/event specific e-blasts*** - PDE prepares at least two press releases annually or other communications to highlight projects that have a nutrient pollution reduction impact.
- ***Living Shorelines*** - Living Shorelines address climate vulnerability and adaptation measures as well as nutrient removal. The living shoreline helps to filter water entering the waterbody, thereby reducing nutrient pollution.



APPENDIX I

FY 2020 DELEP WORK PLAN BUDGET DETAIL

\$650,000

A. Program Office Services						\$215,270
Program Planning and Administration and Support of the Management Conference						
Personnel		Rate	Hours	Total		
Executive Director						
	Kathy Klein	\$78.00	700	\$54,600		
Science Program Manager						
	Angela Padeletti					
		\$49.00	100	\$4,900		
					\$59,500	
Fringe						
	Kathy Klein	\$19.00	700	\$13,300		
Science Program Manager						
	Angela Padeletti					
		\$11.00	100	\$1,100		
					\$14,400	
						\$73,900
Materials for Executive Director (\$100) and occasional costs (\$500) for light refreshments and/or meals served at meetings (4 quarterly Board/EIC meetings), conferences, training workshops and outreach activities (events), consistent with 2 CFR 200.4740, and as approved by the Director. Total (\$600)						\$600
Indirect (45.36% of personnel plus fringe)						\$33,521
					<i>Subtotal</i>	\$108,021

Financial Operations Management						
Personnel		Rate	Hours	Total		
Deputy Executive Director						
	Nancy Descano	\$66.00	350	\$23,100		
					\$23,100	
Fringe						
	Nancy Descano	\$19.00	350	\$6,650		
			.		\$6,650	
						\$29,750
Materials for Deputy Executive Director (\$16) and occasional costs (\$60) for light refreshments and/or meals served at meetings (4 quarterly finance committee meetings), (\$50) conferences, training workshops, consistent with 2 CFR 200.4740, and as approved by the Director. Total (\$126)						\$100
Indirect (45.36% of personnel plus fringe)						\$13,495
					<i>Subtotal</i>	<i>\$43,345</i>
Grant Writing and Management to Support CCMP and Strategic Plan Implementation						
Personnel		Rate	Hours	Total		
Coordinator of Grants						
	Karen Forst	\$45.00	460	\$20,700		
					\$20,700	
Fringe						
	Karen Forst	\$5.00	460	\$2,300		
					\$2,300	
						\$23,000
Materials for Coordinator of Grants.						\$65

Indirect (45.36% of personnel plus fringe)						\$10,433
					<i>Subtotal</i>	\$33,498
PDE Contact Database Management						
Personnel		Rate	Hours	Total		
Director of Donor Engagement						
	Elizabeth Horsey	\$51.00	100	\$5,100		
Events and Grants Administrator						
	Kylie Hall	\$27.00	120	\$3,240		
					\$8,340	
Fringe						
	Elizabeth Horsey	\$13.00	100	\$1,300		
	Kylie Hall	\$8.00	120	\$960		
					\$2,260	
						\$10,600
Indirect (45.36% of personnel plus fringe)						\$4,808
					<i>Subtotal</i>	\$15,408
Personnel, Fringe, Materials and Supplies, Indirect Subtotal:						\$200,272
Contractual - Computer Services/IT Support						\$10,000
Travel - Program implementation – Tech conferences expenses, regional and tri-state travel. Please see Appendix II for detailed travel information.						\$5,000

B. Education & Outreach Partnerships & Initiatives						\$82,749
Holding and Participating in Public Events and Festivals Across the Delaware Estuary (e.g., Coast Days Bay Day)						
Personnel		Rate	Hours	Total		
Outreach Program Specialist						
	Brittany Musolino	\$28.00	247	\$6,916		
	(with other staff)				\$6,916	
Fringe						
	Brittany Musolino	\$8.00	247	\$1,976		
					\$1,976	
						\$8,892
Other - Various staff supporting events/festivals						\$6,000
Materials for festivals and public events (including registration fees), costume for event						\$3,500
Indirect (45.36% of personnel plus fringe)						\$6,755
					<i>Subtotal</i>	<i>\$25,147</i>
Cultivate and Promote New and Existing Educational Partnerships, Programs, and Materials to Address CCMP Actions						
Personnel		Rate	Hours	Total		
Director of Outreach						
	Renee Brecht	\$52.00	150	\$7,800		
Outreach Associate						
	Sarah Morales	\$22.00	370	\$8,140		
Watershed Planning Coordinator						
	Kaitlin Collins	\$31.00	316	\$9,796		
					\$25,736	
Fringe						

	Renee Brecht	\$14.00	150	\$2,100		
	Sarah Morales	\$7.00	370	\$2,590		
	Kaitlin Collins	\$8.00	316	\$2,528		
					\$7,218	
						\$32,954
Materials for E&O staff (\$500) and occasional costs for light refreshments and/or meals served at meetings, conferences, training workshops and outreach activities (\$400); consistent with 2 CFR 200.4740, and as approved by the Director. Total (\$900)						\$900
Indirect (45.36% of personnel plus fringe)						\$14,948
					<i>Subtotal</i>	\$48,802
Personnel, Fringe, Materials and Supplies, Indirect Subtotal:						\$73,949
Contractual costs (design, printing, postage, and social media)						\$5,000
Travel - Event Program - Local/regional conferences and regional/tri-state travel. Please see Appendix II for detailed travel information.						\$2,500
Travel - Educational Program - Travel to public outreach events. Please see Appendix II for detailed travel information.						\$1,300

C. Marketing & Communication Initiatives						\$79,751
PDE Website Operation & Maintenance						
Personnel		Rate	Hours	Total		
Marketing & Communications Manager						
	Kate Layton	\$34.00	160	\$5,440		
					\$5,440	
Fringe						

	Kate Layton	\$10.00	160	\$1,600		
					\$1,600	
						\$7,040
Materials for Marketing and Communications Manager.						\$100
Indirect (45.36% of personnel plus fringe)						\$3,193
					<i>Subtotal</i>	<i>\$10,333</i>
Media Outreach and "Estuary News" Newsletter						
Personnel		Rate	Hours	Total		
Marketing & Communications Manager						
	Kate Layton	\$34.00	333	\$11,322		
Director of Outreach						
	Renee Brecht	\$52.00	63	\$3,276		
					\$14,598	
Fringe						
	Kate Layton	\$10.00	333	\$3,330		
	Renee Brecht	\$14.00	63	\$882		
					\$4,212	
						\$18,810
Materials for media outreach and newsletter production.						\$75
Indirect (45.36% of personnel plus fringe)						\$8,532
					<i>Subtotal</i>	<i>\$27,417</i>
Personnel, Fringe, Materials and Supplies, Indirect Subtotal:						\$37,751

Contractual - newsletter design/printing/postage						\$39,000
Contractual - website hosting & maintenance						\$2,000
Travel - Regional/tri-state travel. Please see Appendix II for detailed travel information.						\$1,000

D. Coordination of Science & Management Needs						\$172,202
Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management						
Personnel		Rate	Hours	Total		
Senior Science Director						
	Danielle Kreeger	\$81.00	400	\$32,400		
					\$32,400	
Fringe						
	Danielle Kreeger	\$19.00	400	\$7,600		
					\$7,600	
						\$40,000
Materials for STAC Board and meetings (\$33); and occasional costs for light refreshments and/or meals served at meetings, conferences, training workshops and outreach activities (events), consistent with 2 CFR 200.4740, and as approved by the Director (1st qtr. MACWA Work Group (STAC affiliated) - \$25; 3 quarterly STAC meetings (Jan., April, Nov.) - \$50 ea. - \$150). Total (\$208)						\$208
Indirect (45.36% of personnel plus fringe)						\$18,144
					<i>Subtotal</i>	<i>\$58,352</i>
Coordination of CCMP Implementation Tracking and NEPORT Data Collection & Reporting						
Personnel		Rate	Hours	Total		

Science Planning Coordinator						
	Emily Baumbach	\$29.00	1025	\$29,725		
Science Technical Specialist						
	Irena Beal	\$21.00	150	\$3,150		
					\$32,875	
Fringe						
	Emily Baumbach	\$8.00	1025	\$8,200		
	Irena Beal	\$7.00	150	\$1,050		
					\$9,250	
						\$42,125
Contractual – Environmental Justice Consultant						\$5,000
Materials for staff and CCMP Work Group						\$100
Indirect (45.36% of personnel plus fringe)						\$19,108
					<i>Subtotal</i>	\$66,333
Science Project Coordination						
Personnel		Rate	Hours	Total		
Science Programs Manager						
	Angela Padeletti	\$49.00	265	\$12,985		
Wetlands Coordinator						
	LeeAnn Haaf	\$37.00	120	\$4,440		
Shellfish Coordinator						
	Kurt Cheng	\$37.00	70	\$2,590		
					\$20,015	
Fringe						
	Angela Padeletti	\$11.00	265	\$2,915		

	LeeAnn Haaf	\$9.00	120	\$1,080		
	Kurt Cheng	\$9.00	70	\$630		
					\$4,625	
						\$24,640
Materials for Science Programs Manager, Shellfish and Wetlands Coordinators.						\$200
Indirect (45.36% of personnel plus fringe)						\$11,177
					<i>Subtotal</i>	<i>\$36,017</i>
Personnel, Fringe, Materials and Supplies, Indirect Subtotal:						\$155,702
Other - Subawards to STAC and other experts.						\$5,000
Travel - Science program conference, regional/tri-state travel for coordination of science & management. Please see Appendix II for detailed travel information.						\$4,000
Travel - CCMP meeting/workshop regional/tri-state travel for CCMP tracking and NEPORT Data Collection & Reporting. Please see Appendix II for detailed travel information.						\$500
Travel - Science project, regional/tri-state travel for science project coordination. Please see Appendix II for detailed travel information.						\$2,000

E. Regional Restoration Initiatives & Projects						\$45,028
Restoration Project Coordination						
Personnel		Rate	Hours	Total		
Restoration Programs Manager						
	Josh Moody	\$47.00	400	\$18,800		
Habitat Project Coordinator						
	Sarah Bouboulis	\$27.00	45	\$1,215		

					\$20,015	
Fringe						
	Josh Moody	\$11.00	400	\$4,400		
	Sarah Bouboulis	\$8.00	45	\$360		
					\$4,760	
						\$24,775
Materials for Restoration staff for field and lab work.						\$200
Indirect (45.36% of personnel plus fringe)						\$11,238
					<i>Subtotal</i>	<i>\$36,213</i>
Travel - Science restoration conference, regional/tri-state travel for regional restoration projects. Please see Appendix II for detailed travel information.						\$2,500
Oyster Shell Recycling						
Personnel		Rate	Hours	Total		
Restoration Programs Manager						
	Josh Moody	\$47.00	15	\$705		
Habitat Project Coordinator						
	Sarah Bouboulis	\$27.00	40	\$1,080		
Outreach Associate						
	Sarah Morales	\$22.00	15	\$330		
Science Intern(s)						
	TBN	\$15.00	60	\$900		
					\$3,015	
Fringe						
	Josh Moody	\$11.00	15	\$165		
	Sarah Bouboulis	\$8.00	40	\$320		
	Sarah Morales	\$7.00	15	\$105		

	Science Intern(s) TBN	\$2.00	60	\$120		
					\$710	
						\$3,725
Materials for Restoration staff for shell bagging						\$500
Indirect (45.36% of personnel plus fringe)						\$1,690
					<i>Subtotal</i>	<i>\$5,915</i>
Personnel, Fringe, Materials and Supplies, Indirect Subtotal:						\$42,128
Travel - Shell recycling regional/tri-state travel for restoration projects. Please see Appendix II for detailed travel information.						\$400
F. Delaware Estuary Science and Environmental Summit						\$5,000
Summit						
Technical Assistance and Capacity Building Tools, Training, and Direct Assistance						\$5,000
G. Urban Waters Ambassador						\$50,000
Personnel		Rate	Hours	Total		
Urban Waters Steward (TBD)						
	TBD	\$37	735	\$27,195		
					\$27,195	
Fringe		\$8	735	\$5,880		
					\$5,880	
						\$33,075
Indirect (45.36% of personnel plus fringe)						\$15,003
Travel to Urban Waters Partnership meetings						\$1,922
TOTAL						\$650,000

APPENDIX II
FY20 NEP DETAILED TRAVEL BUDGET

FY20 NEP DETAILED TRAVEL BUDGET					
<i>Name of Meeting/Event</i>	<i>Approximate Dates</i>	<i>Purpose</i>	<i>Destination</i>	<i># staff</i>	<i>Estimated Cost</i>
A. Program Office Services					
Program Office Services National Estuary Program Meeting	Spring 2019	Education, networking, presentations	Washington, D.C.; New York	1-2	DC TECH Conf - Registration - 1 @ \$150 (\$150), Train fare - 1 @ \$150 (\$150), Per diem - 1 x \$56/day/3 days (\$168), Lodging - 1 @ \$135/3 nights (\$405). Region II meeting NY - Train - 1 @ \$127 estimate (\$127).
					\$1,000
Program Office Services National Estuary Program Conference	Fall 2018	Education, networking, presentations	Not yet known	2	TECH Conf location TBD - Registration -2 @ \$150 ea (\$300), Airfare - 2 @ \$400 ea (\$800), Per diem - 2 @ \$56/day/3 days (\$336), Lodging - 2 @ \$125/4 nights (\$1000); Airport parking @ \$64 (\$64)
					\$2,500

Program Office Services local/regional conferences/meetings/events/trainings	Ongoing throughout year	NEP Management, Partnerships	Various, primarily in DE, NJ, and PA	2-3	Tri-state mileage -2060 miles @ \$.58 per mile for 2 - 3 people (\$1195), Train to Phila 2-3 people 6 trips @ \$12 ea (\$72), Parking - Phila 5 trips @ \$25 ea (\$125); Tolls - DE 11 @ \$4 (\$44) NJ - 8 @ \$8 (\$64)
					\$1,500
B. Education and Outreach Partnerships & Initiatives					
Event Program public events and festivals across the Delaware Estuary	Ongoing throughout year	Events to raise public awareness of the Estuary	Various, primarily in DE, NJ, and PA	2-3	Local/regional meeting/conference registrations TBD - 3 @ \$100 ea (\$300),
Educational Program conferences/ Meetings/Events	Ongoing throughout year	Outreach/Education /Citizen Engagement/coordination	Various, primarily in DE, NJ, and PA	1 - 2	Tri-state mileage - 675 miles @ \$.58/mi (\$418); Tolls - DE 6 @ \$4/ea (\$32); NJ - 6 @ \$8 ea (\$64); Parking Phila 2 @ \$25 ea (\$50).
Educational Program National Estuary Program Conference	Fall 2018	Education, networking, presentations	Not yet known	2	TECH conf location TBD - Registration -2 @ \$150 ea (\$300), Airfare - 2 @ \$300 ea (\$600), Per diem - 2/\$56/day/3 days (\$336), Lodging - 2/ \$125/3 nights (\$500 room share).
					\$2,500

C. Marketing and Communications Initiatives					
Marketing & Communications media outreach and Estuary news production tri-state travel	Ongoing throughout year	Travel to press events, meetings, and to photograph NEP projects and events	Various, primarily in DE, NJ, and PA	1-2	Tri-state mileage - 1397 miles @ \$.58/mi (\$761); Tolls - DE 6 @ \$4 ea (\$24), NJ 5 @ \$8 ea (\$40); Parking - Phila 7 @ \$25 ea (\$175)
					\$1,000
D. Coordination of Science & Management Needs					
Science Program Atlantic Estuarine Research Society (AERS) Fall 2018 - 10/11 - 13/18, or Spring 2019	Fall 2018	Education, networking, presentations	Galloway, NJ, Fairfax, VA	2	AERS Conference - Mileage -195 miles RT @ \$.58/mi = (\$107); Per diem 2x\$51/day/3 days (\$306); Registration \$100 ea x 2 (\$200); Lodging - 2 rooms/3 nights @ \$100 (\$600 room share)
Science Program local/regional meetings/events/conferences	Ongoing travel throughout the year	Outreach, education, coordination, citizen engagement	Various, primarily in DE, NJ, PA, Mid-Atlantic region	1 - 2	Tri-state mileage 1 -2 staff - 4538 miles @ \$.58/mi (\$2,473); parking Drexel - 6 @ \$5 (\$30); tolls - DE 21 @ \$4 (\$84); NJ 8 @ \$25 (\$200).
					\$4,000
CCMP coordination of CCMP Revision/ NEPORT	Ongoing throughout year	Meetings/Workshops/ Coordination/Citizen/ Public Engagement	Various, primarily in DE, NJ, and PA	1	Tri-state mileage to workshops/meetings - 1475 miles @ \$.58/mi = \$804; Tolls - DE 8 @ \$4 (\$32), NJ 8 @ \$8 (\$64) ; parking Phila 4 @ \$25 (\$100).

					\$1,000
Science Project Atlantic Estuarine Research Society	Fall 2018 or Spring 2019	Education, networking, presentations	Galloway, NJ, Fairfax, VA	2	AERS conf mileage - 197 miles @ \$.58/mi (\$107); Registration - 2 @ \$100 ea (\$200); Lodging - 2 rooms x 2 nights for @ \$100/night (\$400 room share); Per diem @ \$51/day/2 days/2 (\$204).
Science Project local/regional meetings/events/conferences	Ongoing throughout the year	Education, networking, presentations	Various, primarily in DE, NJ, and PA	2-3	Tri-state mileage - 1796miles @ \$.58/mi (\$979); Tolls - DE 7 @ \$4 ea (\$28), NJ 4 @ \$8 ea (\$32); Parking - Phil 2 @ \$25 (\$50).
					\$2,000
E. Regional Restoration Initiatives and Projects					
Regional Restoration AERS conference, Fall 2018 - 10/11 - 13/2018	Fall 2018, Spring 2019	Education, networking, presentations	Galloway, NJ, Fairfax, VA	1-2	AERS conf registration @ \$100 x 1 (\$100); Per diem 2 x \$51/day/3 days (\$306); Lodging - 1 room x 3 nights x \$100 (\$300).
Regional Restoration local and Regional conferences/ Meetings /Events	Ongoing throughout year	Outreach/Education/ Coordination/Citizen Engagement	Various, primarily in DE, NJ, and PA mid-Atlantic region	1-2	Tri-state mileage - 2455 miles @ \$.58/mi (\$1,338); Tolls DE 10 @ \$4 ea (\$40), NJ 9 @ \$8 ea (\$72); Parking - Phila 6 @ \$25 ea (\$150), Drexel 5 @ \$10 ea (\$50); Train to PA - 12 @ \$12 (\$144)
					\$2,500

Oyster Shell Recycling	Ongoing throughout year	Shell pickup/bagging events	Various, primarily in DE and PA	1-3	DE/PA mileage for shell pick up and shell bagging events - 918 miles @ \$.58/mi = \$500.
					\$500
G. Urban Waters Ambassador					
Urban Waters Partnership meetings and partner coordination	Ongoing throughout year	Coordination/Partner Engagement	Various, primarily focused on Camden, NJ, Chester, PA, Philadelphia, PA and Wilmington, DE	1-2	Tri-state mileage - 3012 miles @ \$.58/mi (\$1,747); Tolls NJ 10 @ \$5 ea (\$50); Parking - Phila 5 @ \$25 ea (\$1250)
					\$1,922

APPENDIX III

FY18 TRAVEL DETAIL REPORT PRIOR FISCAL YEAR (OCTOBER 1, 2017 - SEPTEMBER 30, 2018)



APPENDIX IV - List of Acronyms that may be used in Travel Reports

AERS = Atlantic Estuarine Research Society
ANEP = Association of National Estuary Programs
ANJEC = Association of New Jersey Environmental Commissions
ANS = Academy of Natural Sciences
AWRA = American Water Resources Association
BaySIPP = Bayshore Sustainable Infrastructure Planning Project
BCSP = Brandywine Creek State Park
Camden SMART Forum = Camden Stormwater Management and Resource Training Forum
CAC = Citizens Advisory Committee
CBTF = Christina Basin Task Force
CERF = Coastal and Estuarine Research Foundation
CESP = Corporate and Community Environmental Stewardship Program
CCI EE = Camden Collaborative Initiative (CCI), EE = Environmental Education (subcommittee)
CCMUA = Camden County Municipal Utilities Authority
CIB = Center for Inland Bays
CUSP = Climate & Urban Systems Partnership: Philadelphia
DAEE = Delaware Association for Environmental Education
DEEC = Delaware Environmental Center
DELEP = Delaware Estuary Program
DELSI = Delaware Estuary Living Shoreline Initiative
Delco CZTF = Delaware County Coastal Zone Task Force
DNREC = Delaware Department of Natural Resources and Environmental Control
DRBC = Delaware River Basin Commission
DRWI - Delaware River Watershed Initiative
EIC = Estuary Implementation Committee
ESRI = Environmental Systems Research Institute
FMRP = Freshwater Mussel Recovery Program
FWWIC = Fairmount Water Works Interpretive Center
HOHO = a data logger for monitoring work
HSC = horseshoe crab
HSRL = Haskin Shellfish Research Laboratory (Rutgers)
LS = Living Shoreline
MACWA = Mid-Atlantic Coastal Wetlands Assessment
MTAAP = Municipal Technical Assistance Advisory Panel
NEP = National Estuary Program
NWF - National Wildlife Federation
PA CZM = Pennsylvania Coastal Zone Management



RASCL = Resilient and Sustainable Communities League
RTK = Real Time Kinematic
SAN= Schuylkill Action Network
SAW = Stock Assessment Workshop
SCEE = Schuylkill Center for Environmental Education
SJBC = South Jersey Bayshore Coalition
SJ CATF = Sustainable Jersey Climate Adaptation Task Force
SRG = Schuylkill River Greenways
SRW = Schuylkill River Watershed
STAC = Science and Technical Advisory Committee
USFWS = United States Fish & Wildlife Service
WQAC = Water Quality Advisory Committee
WRADRB = Water Resources Association of the Delaware River Basin



APPENDIX V – APPROVED INDIRECT RATE AGREEMENT

Nonprofit Organization Indirect Cost Negotiation Agreement

EIN: 51-0375307

Organization:

Partnership for the Delaware Estuary, Inc.
One Riverwalk Plaza
110 South Poplar Street, Suite 202
Wilmington, DE 19801

Date:

Report No(s) .:

Filing Ref.:

Last Negotiation Agreement
dated October 11, 2017

The indirect cost rates contained herein are for use on grants, contracts, and other agreements with the Federal Government to which 2 CFR Part 200 apply for fiscal years beginning on or after December 26, 2014 subject to the limitations contained in Section II.A. of this agreement. Applicable OMB Circulars and the regulations at 2 CFR 230 will continue to apply to federal funds awarded prior to December 26, 2014. The rates were negotiated by the U.S. Department of the Interior, Interior Business Center, and the subject organization in accordance with the authority contained in applicable regulations.

Section I: Rates

Type	Effective Period		Rate*	Locations	Applicable To
	From	To			
Final	01/01/17	12/31/17	45.36%	All	All Programs
Provisional	01/01/19	12/31/19	45.36%	All	All Programs

***Base:** Total direct salaries and wages, including fringe benefits. The rate applies to all programs administered by the non-federal entity. To determine the amount of indirect costs to be billed under this agreement, direct salaries and wages and related fringe benefits should be summed and multiplied by the rate. All other program costs should be eliminated from the calculation.

Treatment of fringe benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs; fringe benefits applicable to indirect salaries and wages are treated as indirect costs.

Treatment of paid absences: The costs of vacation, holiday, sick leave pay and other paid absences are included in the organization's fringe benefit rate and are not included in the direct cost of salaries and wages. Claims for direct salaries and wages must exclude those amounts paid or accrued to employees for periods when they are on vacation, holiday, sick leave or are otherwise absent from work.

Section II: General

Page 1 of 3

A. Limitations: Use of the rate(s) contained in this agreement is subject to any applicable statutory limitations. Acceptance of the rate(s) agreed to herein is predicated upon these conditions: (1) no costs other than those incurred by the subject organization were included in its indirect cost rate proposal, (2) all such costs are the legal obligations of the grantee/contractor, (3) similar types of costs have been accorded consistent



treatment, and (4) the same costs that have been treated as indirect costs have not been claimed as direct costs (for example, supplies can be charged directly to a program or activity as long as these costs are not part of the supply costs included in the indirect cost pool for central administration).

B. Audit: All costs (direct and indirect, federal and non-federal) are subject to audit. Adjustments to amounts resulting from audit of the cost allocation plan or indirect cost rate proposal upon which the negotiation of this agreement was based will be compensated for in a subsequent negotiation.

C. Changes: The rate(s) contained in this agreement are based on the organizational structure and the accounting system in effect at the time the proposal was submitted. Changes in organizational structure, or changes in the method of accounting for costs which affect the amount of reimbursement resulting from use of the rate(s) in this agreement, require the prior approval of the responsible negotiation agency. Failure to obtain such approval may result in subsequent audit disallowance.

D. Rate Type:

1. **Fixed Carryforward Rate:** The fixed carryforward rate is based on an estimate of the costs that will be incurred during the period for which the rate applies. When the actual costs for such period have been determined, an adjustment will be made to the rate for a future period, if necessary, to compensate for the difference between the costs used to establish the fixed rate and the actual costs.

2. **Provisional/Final Rate:** Within six (6) months after year end, a final indirect cost rate proposal must be submitted based on actual costs. Billings and charges to contracts and grants must be adjusted if the final rate varies from the provisional rate. If the final rate is greater than the provisional rate and there are no funds available to cover the additional indirect costs, the organization may not recover all indirect costs. Conversely, if the final rate is less than the provisional rate, the organization will be required to pay back the difference to the funding agency.

3. **Predetermined Rate:** A predetermined rate is an indirect cost rate applicable to a specified current or future period, usually the organization's fiscal year. The rate is based on an estimate of the costs to be incurred during the period. A predetermined rate is not subject to adjustment. (Because of legal constraints, predetermined rates are not permitted for Federal contracts; they may, however, be used for grants or cooperative agreements.)

E. Rate Extension: Only final and predetermined rates may be eligible for consideration of rate extensions. Requests for rate extensions of a current rate will be reviewed on a case-by-case basis. If an extension is granted, the non-Federal entity may not request a rate review until the extension period ends. In the last year of a rate extension period, the non-Federal entity must submit a new rate proposal for the next fiscal period.

F. Agency Notification: Copies of this document may be provided to other federal offices as a means of notifying them of the agreement contained herein.

G. Record Keeping: Organizations must maintain accounting records that demonstrate that each type of cost has been treated consistently either as a direct cost or an indirect cost. Records pertaining to the costs of program administration, such as salaries, travel, and related costs, should be kept on an annual basis.



H. Reimbursement Ceilings: Grantee/contractor program agreements providing for ceilings on indirect cost rates or reimbursement amounts are subject to the ceilings stipulated in the contract or grant agreements. If the ceiling rate is higher than the negotiated rate in Section I of this agreement, the negotiated rate will be used to determine the maximum allowable indirect cost.

I. Use of Other Rates: If any federal programs are reimbursing indirect costs to this grantee/contractor by a measure other than the approved rate(s) in this agreement, the grantee/contractor should credit such costs to the affected programs, and the approved rate(s) should be used to identify the maximum amount of indirect cost allocable to these programs.

J. Other:

1. The purpose of an indirect cost rate is to facilitate the allocation and billing of indirect costs. Approval of the indirect cost rate does not mean that an organization can recover more than the actual costs of a particular program or activity.

2. Programs received or initiated by the organization subsequent to the negotiation of this agreement are subject to the approved indirect cost rate(s) if the programs receive administrative support from the indirect cost pool. It should be noted that this could result in an adjustment to a future rate.

3. This Negotiation Agreement is entered into under the terms of an Interagency Agreement between the U.S. Department of the Interior and the cognizant agency. No presumption of federal cognizance over audits or indirect cost negotiations arises as a result of this Agreement.

4. Organizations that have previously established indirect cost rates-exclusive of the 10% *de minimis* rate-must submit a new indirect cost proposal to the cognizant agency for indirect costs within six (6) months after the close of each fiscal year.

Section III: Acceptance

Listed below are the signatures of acceptance for this agreement:

By the Nonprofit Organization:

Partnership for the Delaware

Estuary, Inc.

Grantee/Contractor

Signature

Nancy E. Descano

Name (Type or Print)

Title

Deputy Executive Director

Date

4/10/9

By the Cognizant Federal Government Agency:

U.S. Environmental Protection Agency
Cognizant Agency

Signature

Craig A. Wills

Name

Division Chief

Indirect Cost Services Division

Title

U.S. Department of the Interior

Interior Business Center

Agency

Negotiated by Shaun House
Telephone (916) 930-3820

