



**Partnership for the Delaware Estuary, Inc.
US EPA Section 320 of the Clean Water Act
National Estuary Program FY2021 Work Plan
including Addendum for Urban Waters Ambassador**

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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. FY20 NEP PROGRAM HIGHLIGHTS (10/1/2019 through 4/30/2020)	3
II. DELAWARE ESTUARY NATIONAL ESTUARY PROGRAM (NEP) FY21 WORK PLAN	4
III. DELAWARE ESTUARY FY21 BUDGET AND STAFF	12
A. Proposed PDE Work Plan Expenditures, Including Match	12
B. FY21 Non-Federal Match Breakdown - Primary Partner Activities	13
C. NEP Staff and Responsibilities	16
IV. PROPOSED NEW AND ONGOING PROJECTS FOR FY21*	17
A. PROGRAM OFFICE SERVICES	17
B. EDUCATION & OUTREACH PARTNERSHIPS & INITIATIVES	26
C. MARKETING & COMMUNICATIONS INITIATIVES	33
D. COORDINATION OF SCIENCE AND MANAGEMENT NEEDS	37
E. REGIONAL RESTORATION INITIATIVES AND PROJECTS	43
F. TECHNICAL REPORT FOR THE ESTUARY AND BAY (TREB)	47
G. ADDENDUM - Urban Waters Federal Partnership	49
VI. AREAS OF SPECIAL INTEREST FY21	51
A. Activities Supporting Climate Resilience	51
B. Activities Involving Nutrient Management and Control	53
V. FY20 WORKPLAN SEMI-ANNUAL PROGRESS REPORT	55
(For Work Completed Between OCTOBER 1, 2019 - APRIL 30, 2020) <i>(Will be inserted)</i>	55
VI. APPENDIX	56
APPENDIX I - FY21 NEP DETAILED BUDGET	56
APPENDIX II - FY21 NEP DETAILED TRAVEL BUDGET	66
APPENDIX III - FY19 TRAVEL DETAIL REPORT PRIOR FISCAL YEAR (10/1/18 – 9/30/19) <i>(will be inserted)</i>	67
APPENDIX IV - List of Acronyms that may be used in Travel Reports	68
APPENDIX IV - INDIRECT RATE AGREEMENT <i>(Will insert when available)</i>	70



I. FY20 NEP PROGRAM HIGHLIGHTS (10/1/2019 through 4/30/2020)

(will be finalized when Program Updates section is completed)

Living Shorelines - PDE continued to conduct studies to better understand the mussel habitat requirements that improve living shoreline designs in the urban freshwater tidal estuary, and continued to work on living shoreline planning, installation and monitoring at sites in all three Estuary states, including a focus on urban environments.

Public Engagement –PDE staff continued to reach communities through various social media platforms and virtual meetings, and provided over 17 scientific presentations during this time-period. The public outreach included PDE-organized events such as RiverFest. PDE also held its annual Experience the Estuary Celebration at a new location in Philadelphia and more than 400 people attended the event.

CCMP Tracking and GPRA Reporting - PDE worked with the EIC to develop and modify a tracking tool that will combine the collection of GPRA information with the collection of information on projects related to CCMP progress and implementation. This will lead to more thorough and efficient tracking of all activities in support of the revised CCMP.

Bivalve Research & Freshwater Mussel Propagation - PDE continued to conduct physiological experiments to measure the pollutant removal rates of oysters and ribbed mussels for water quality improvement. Freshwater mussel restoration efforts included propagation of 5 species in 2019 and testing whether mussels can survive and improve water quality in managed stormwater ponds.



II. DELAWARE ESTUARY NATIONAL ESTUARY PROGRAM (NEP) FY21 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 and partner in 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 completed a 2-year process to revise the Comprehensive Conservation and Management Plan (CCMP) for the Delaware Estuary by 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 Waters

- Goal 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 FY21 Work Plan's focus areas are guided by the revised CCMP. PDE has also started the process of developing a new Strategic Plan, which will guide PDE's work over the next 3-5 years, in support of implementation of the revised CCMP. This plan is expected to be completed by Fall 2020. In the interim, the 2013-2018 Strategic Plan 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 FY21 funding in the allocated amount of \$662,000 for the Projects/Activities identified in Sections II of the Work Plan Summary Table, and Proposed New and Ongoing Projects for FY21, respectively. Over the years, as a 501(c)(3) non-profit organization, PDE has raised, on an annual basis, significant additional funds (two to three times the NEP funding allocation) to assist in implementing this Work Plan. However, due to the current Covid-19 pandemic, PDE anticipates a significant decrease in the amount of dollars that it will be able to raise in 2020, and this situation could stretch into 2021 as the economic recovery begins. Therefore, raising the additional funding needed to fully implement PDE's work in 2021 will be a challenge in light of the impacts from the Covid-19 National Emergency. There may need to be modifications to some of the activities included in the FY21 Work Plan.

The format of the FY21 Work Plan reflects the priorities of the revised CCMP. Our focus for the FY21 Work Plan also includes aligning NEP reporting with the revised CCMP and implementing and fine-tuning new tracking tools and processes with partners.



The following FY21 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.



**DELAWARE ESTUARY FY21
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				\$258,605	
Program Planning & Administration, Support of Management Conference	Executive Director; Estuary Program Coordinator	Goal 3	All	\$136,184	
				\$132,184	Staff support
				\$4,000	National Estuary Program travel
Financial & Operations Management in Support of Management Conference & Organization	Finance and Administrative Director	Goal 3	All	\$51,863	
				\$36,863	Staff support
				\$10,000	Contractual (IT system support)
				\$5,000	Computer equipment
Grant Writing and Administration in Support of CCMP Implementation	Grants Manager	Goal 3	All	\$33,115	Staff support
PDE Contact Database Management	Director of Development; Development Coordinator	Goal 3	Strategy C2.1	\$14,464	Staff support

CCMP Implementation Tracking and NEPORT Date Collection/Reporting	Estuary Program Coordinator	Goal 3	All	\$22,978	
				\$19,178	Staff support
				\$2,500	Environmental Justice Consultant
				\$1,300	CCMP/NEPORT travel
B. Education & Outreach Partnerships & Initiatives				\$110,839	
Holding and Participating in Targeted Public Events and Festivals Across the Delaware Estuary	Outreach Program Coordinator (with other PDE staff)	Goal 2	Strategy C2.2	\$31,759	
				\$26,759	Staff support
				\$3,000	Event costs / materials & supplies
				\$2,000	Event program travel
Educational Partnerships, Programs, and Materials to Address CCMP and Strategic Plan Priorities	Operations Director, Outreach Coordinator, Watershed Planning Coordinator	Goals 1 and 2	Strategies W1.4, W2.1, W3.4, C1.2, C1.4, C2.1, C2.3, C2.4 and C2.5	\$79,079	
				\$74,079	Staff support
				\$2,000	Education program travel
				\$3,000	Contractual (design, printing, postage and social media)

C. Marketing & Communication Initiatives					\$71,178
PDE Website Operation & Maintenance	Communications Coordinator	Goals 2 and 3	Strategy C2.1, supports all Strategies	\$18,046	
				\$15,046	Staff support
				\$3,000	Contractual (website hosting, maintenance)
Media Outreach and “Estuary News” Newsletter	Communications Coordinator, Executive Director	Goals 2 and 3	Strategy C1.2	\$53,132	
				\$29,432	Staff support
				\$23,000	Contractual (printing, design, postage)
				\$700	Marketing & Communications travel
D. Coordination of Science and Management Needs					\$121,918
Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management	Senior Science Director	Goal 1	All	\$71,737	
				\$68,737	Staff support
				\$3,000	Science program travel
Science Project Coordination	Operations Director, Wetlands Coordinator, Shellfish Coordinator	Goal 1	Strategy H1.1	\$50,181	
				\$48,481	Staff support
				\$1,700	Staff travel

E. Regional Restoration Initiatives and Projects				\$46,798
Restoration Project Coordination	Restoration Programs Manager, Habitat Project Coordinator	Goal 1	Strategy H1.3, H1.4, H2.2, W1.2, W3.2	\$46,798
				\$44,798 Staff support
				\$2,000 Staff travel
F. Technical Report for the Estuary and Bay (TREB)				\$52,663
Technical Assistance and Capacity-Building Tools, Training, and Direct Assistance	Senior Science Director, Estuary Program Coordinator, Wetlands Coordinator, Science Fellow	Goal 3	All	\$52,663
				\$29,395 Staff support
				\$268 Staff travel
				\$23,000 Contractual for TREB Technical support
G. ADDENDUM - Urban Waters Ambassador				\$50,000
Urban Waters Ambassador	TBD		All	\$50,000
				\$49,700 Staff support
				\$300 Staff travel
TOTAL				\$712,000

III. DELAWARE ESTUARY FY21 BUDGET AND STAFF

(to be updated based on input from partners)

A. Proposed PDE Work Plan Expenditures, Including Match

1. FY21 NEP BUDGET BREAKDOWN

PROGRAM ELEMENTS	AMOUNT
A. Program Office Services	\$258,605
B. Education & Outreach Partnerships & Initiatives	\$110,839
C. Marketing & Communications Initiatives	\$71,178
D. Coordination of Science & Management Needs	\$121,918
E. Regional Restoration Initiative & Projects	\$46,798
F. Technical Report for the Estuary and Bay	\$52,663
G. Addendum - Urban Waters Ambassador	\$50,000
NEP WORK PLAN TOTAL	<u>\$712,000</u>

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

2. FY21 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
Schuylkill River Restoration Fund	\$50,000
MATCH TOTAL	<u>≥\$712,000</u>

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



B. FY21 Non-Federal Match Breakdown - Primary Partner Activities

In FY21, 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 FY21 NEP funding. Please find below a description of the activities that are anticipated to be used as match:

1. 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.

2. 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.

3. 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 (DeDOT):

The Delaware Department of Transportation (DeDOT) 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, DeDOT'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, DeDOT 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: ≥\$712,000 (above the 1-to-1 Non-Federal match as required)

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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 – Finance and Operations Director	<i>Business operations and financial management</i>
Emily Baumbach – Estuary Program Coordinator	<i>Assist with coordination of the Management Conference (including Board, EIC, Steering Committee), CCMP and NEPORT tracking/reporting</i>
Elizabeth Horsey – Development Director, TBD – Development Coordinator	<i>Contact database management</i>
Karen Forst – Grants Manager	<i>Grant Writing and Administration</i>
Education & Outreach Partnerships & Initiatives	
Angela Padeletti – Operations Manager	<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 Coordinator	<i>Local community and decision-maker outreach and technical assistance (focus: riparian buffers, storm water BMPs)</i>
Kate Hutelmyer, Collaborative Programs Manager, SAN, Virginia Vassilotti, SAN Coordinator and Erica Rosetti – SAN Associate	<i>Local community and decision-maker outreach and technical assistance (focus: riparian buffers, storm water BMPs, source water protection)</i>
Kaitlin Tucker - Coastal Watershed Coordinator	<i>Local community and decision-maker outreach and technical assistance (focus: planning for community resilience)</i>
TBD - Outreach Associate	<i>Implementation of teacher and classroom programs, and educational and awareness-raising events, responding to public requests for information</i>
Marketing & Communications Initiatives	
Kate Layton - Communications Coordinator	<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 - Operations Director	<i>PDE Science Program Planning and Administration, including budget tracking, partner coordination, and ensuring sufficient equipment and capacity to implement science</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 Program Management, including regional restoration planning, project budgets, partner coordination, and overseeing scientific designs and monitoring of restoration projects (e.g., living shorelines, shellfish reefs, rain gardens, wetlands)</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>



IV. PROPOSED NEW AND ONGOING PROJECTS FOR FY21*

**It should also be noted that the immediate and long-range impacts of the Covid-19 pandemic, which significantly began to impact the NJ, PA and DE region in March 2020, are yet to be fully known. We anticipate a slow return to more regular operations, however, we anticipate that changes may be necessary in certain program areas to adhere to any lingering restrictions on large gatherings, travel, etc. PDE will continue to monitor the evolving situation and propose adjustments to the Work Plan as needed where it becomes necessary to make modifications.*

A. 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 funding 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 DELEP Steering Committee and the Estuary Implementation Committee (EIC). 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 2021 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 implementation of the revised CCMP and tracking CCMP implementation by PDE and program partners.

NEP funding will be used in FY21 to provide staff salary support for the Executive Director, Estuary Program Coordinator, Finance and Operations Director, Grants Manager (to support CCMP implementation), Development Director (contact donor database), and Development Coordinator (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, Estuary Program Coordinator, Finance and Operations Director, and Development staff for NEP business including, but not limited to, the Executive Director's participation in NEP meetings as required.

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, EIC) in implementing the revised CCMP and PDE's Strategic Plan*,



	overall program coordination, management and direction. (*PDE has recently started the Strategic Plan development process, and expects the new plan to be completed by Fall 2020.)	
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 Estuary Program Coordinator assists the Executive Director with operation of NEP functions. • 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"> • Bi-monthly 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	\$136,184 (Staff support of \$132,184 and all Program travel of \$4,000)	
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	(1) establishing water quality standards	
	(2) identifying polluted waters and developing plans to restore them (total maximum daily loads)	



<i>These activities are required as part of the National Estuary Program</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 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 Steering Committee and EIC. 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 2021 and that it will continue to meet bi-monthly and work with PDE staff to plan, promote, and hold events throughout 2021. Many events scheduled for 2020 were cancelled due to the Covid-19 pandemic, and fundraising in 2021 remains uncertain. PDE staff and the Development Committee have a tentative goal of raising more than \$75,000 in event tickets and sponsorship in 2021, and engaging hundreds of people. Two 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. And a new Strategic Planning Committee, with a mix of staff and Board members, was established in 2020 to help drive the strategic planning process.</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>	



	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 2020 these included the: Delaware River Watershed Initiative, Coalition for the Delaware River Watershed, 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 2021.
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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 Finance and Administrative 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.
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	\$51,863 (Staff support of \$36,863, contractual IT support of \$10,000, and computer equipment 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 by 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	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. A Board Strategic Business Planning Ad Hoc Committee was established in 2019 to address issues related to billing and rate structures to help ensure long-term financial stability. It is anticipated that a number of Board Members and other volunteers will be active on both of these Committees in 2021.	

CCMP Goal Area & Strategy	All
Project/Activity Name	Grant Writing and Administration in Support of CCMP Implementation
Project/Activity Objective	Work with PDE staff and partners to develop new project ideas and prepare/submit funding proposals in support of CCMP and strategic planning implementation by PDE and its partners.
Project/Activity Description	Participate in meetings with PDE staff and partners, research grant opportunities to support CCMP implementation, coordinate with PDE partners, and participate in NEP related meetings.
Implementers, Partners and Their Role(s)	<ul style="list-style-type: none"> PDE's Grants Manager assists with project concept development related to CCMP implementation, and prepared and submits proposals.
Outputs/Deliverables	<ul style="list-style-type: none"> Coordination with PDE staff and partners in support of CCMP implementation, proposal writing and grant administration



Estimated Milestones/Timeline	<ul style="list-style-type: none"> • New partnerships created in support of CCMP implementation • Existing partnerships strengthened in support of CCMP implementation • Submit 30-40 grants 	
Estimated Budget	\$33,115 (Staff support of \$33,115)	
Long-term Outcomes	Enhanced coordination with PDE partners for implementation of the CCMP and strategic plan 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	<ul style="list-style-type: none"> • PDE's Grants Manager is responsible for writing, submitting, managing, and reporting on PDE's grants. PDE applies to a variety of grant sources, including foundations, corporations, state agencies, and federal agencies each year (including most of our Management Conference partner agencies). As a result, between 30 - 40 proposals are submitted on average each year, with a goal of diversifying funding sources and seeking new project funders. 	

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 approximately 30,000 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 Development Director is the administrator of the PDE contact database. PDE's Development Coordinator assists with database management and data entry.	
Outputs/Deliverables	<ul style="list-style-type: none"> • Generate 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"> • One printed newsletter preparation and follow-up. • Three e-news blast newsletters preparation and follow-up. 	
Estimated Budget	\$14,464 (Staff support of \$14,464)	
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 \$69,463 in 2019. PDE has invested considerably in its development office over the last few years and anticipates continuing to grow this revenue in 2021 and beyond, using non-NEP funding.	

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, PDE established a tracking system to record tracking of the revised CCMP. PDE will continue to coordinate tracking of CCMP strategies by PDE and Estuary Program partners. PDE will continue to address new focus areas included in the revised CCMP including the priority to engage underserved communities in the Estuary region.	
Implementers, Partners and Their Role(s)	<ul style="list-style-type: none"> • PDE’s Estuary Program 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 Analyst 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 continue working 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	\$22,978 (Staff support of \$19,178, contractual of \$2,500 for consultant on underserved communities, and travel of \$1,300)	
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



<i>A revised CCMP is required by the National Estuary Program and will include actions that address most, if not all, of these other core programs</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 aquifer ecosystems	X
Anticipated Additional Projects/Activities Supported by Other Sources of Funding	NA - This work is entirely covered by NEP funding	

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B. 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 FY21 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 2021 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. PDE will continue to investigate options for increased citizen involvement in PDE planning and CCMP implementation, as well as working on ways to bring PDE’s work to the public in new and innovative ways, which could include online presentations, recorded videos, etc. 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) and/or developing innovative ways to reach the public
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 4 or more events, including 1-2 PDE-organized events (including RiverFest, Wilmington Earth and Arbor Day festival and DE Coast



	Day). <ul style="list-style-type: none"> Exposure to 19,000 people via events. 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> Events calendar developed by March 2021. Participation in 4 or more events, focused heavily on spring events such as Philly Science Festival and NJ Shad Festival, and fall events such as DE Coast Day. Tracking/evaluating results in December. 	
Estimated Budget	\$31,759 (E&O staff support of \$26,759; \$3,000 event costs/ materials & supplies; travel to/from event programs of \$2,000)	
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 Delaware RiverFest and Wilmington Earth and Arbor Day, which are expected to be held in 2021.	

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</p>
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	<p>Strategy C1.4: Connect people to natural areas and waterfronts in the Delaware Estuary;</p> <p>Strong Communities Goal 2: Improve Public Awareness and Stakeholder Engagement</p> <p>Strategy C2.3: Develop and promote programs that engage teachers and schools in stewardship of the Delaware Estuary</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; investigate opportunities to increase citizen involvement in PDE/DELEP decision making, continue assessing PDE/DELEP work as it relates to Environmental Justice through staff and Board training and partner communications.
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 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. PDE will continue to work with its Environmental Justice/DEIJ consultant to provide staff and Board training. Staff will also continue working with the EIC to explore ways to better engage more citizens in CCMP priority setting and implementation.
Implementers, Partners, and Their Role(s)	<ul style="list-style-type: none"> • PDE’s Operations Director helps to 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 Coordinator is responsible for coordinating programs for teachers, classrooms, and volunteers. • PDE’s Outreach Coordinator 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 2020, 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 2021 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"> • Teacher trainings at various times throughout the year. • 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	\$76,079 (staff support at \$74,079, and educational program travel at \$2,000)
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)	(1) establishing water quality standards



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>	(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 as well as the Resilient and Sustainable Communities League in Delaware. 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 which was received from WPF in early 2018 to support three years of this work, will now continue through 2021.</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, and the South Jersey Scrub.</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 recent years, PDE built new relationships with 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 future.</p>	



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 accessing publications and other materials. PDE's website is fully smart phone and tablet accessible, allowing people to access and view 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 70,000 website visitors and over 200,000 page visits. • One or more new PDE-specific publications. • More than 50,000 pieces of literature/materials distributed. • 10 social media posts per week 	
Estimated Milestones/Timeline	Distribution and online views tracked annually in December.	
Estimated Budget	\$3,000 (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 <i>Requests for</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)	X



<i>information and publications can include any/all of these topics</i>	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	PDE works with partners to develop and produce informational and educational materials related to specific projects or areas of work.	
	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, under a contract with 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 through PDE to municipalities outside of Philadelphia by bulk ordering to receive discount pricing.	



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 FY21 to provide staff salary support for the Communications Coordinator for implementing these activities under the leadership of the Executive Director. Both will play a central role in working with PDE Board members and DELEP partners to implement elements of the marketing and communications strategy. 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 Communications Coordinator 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 2019, PDE had approximately 239,000 visits and 76,000 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 Communications Coordinator is primarily responsible for maintaining website operations and content.
Outputs/Deliverables	<ul style="list-style-type: none"> • www.DelawareEstuary.org maintained with high numbers of page views (over 200,000) and unique visitors (over 75,000).
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Monthly updates to content. • Year-end reporting on visitors and page views.
Estimated Budget	\$18,046 (Staff support of \$15,046 and contractual support of \$3,000 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	To be determined	

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, 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 about 30,000 people in a large and diverse estuary watershed. Winter and summer print issues are mailed to roughly 22,000 subscribers, emailed to approximately 7,000 people (some overlap with mailed copies), and an additional 2,700 are made available to readers via distribution points. Spring,



	<p>fall, winter and summer E-news issues are emailed to close to 7,000 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. PDE is investigating options for producing 2 shorter hard-copy issues per year, and additional e-news versions to reduce paper usage and cost.</p>	
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> • PDE’s Communications Coordinator 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, Operations Director, Development Director, 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 22,000 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 1-2 issues of <i>Estuary News</i> focused 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	\$53,132 (Staff support of \$29,432, contractual of \$23,000 for printing, design, and postage, and \$700 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 <i>Newsletter and media outreach topics could include any of these, but most likely focus</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



on 4-6	(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 annually. The current status of funding from DNREC for FY21 is uncertain.	

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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 FY21 to provide staff salary support for the Senior Science Director and Science Programs Manager, who will be supported by a Science Fellow, Wetlands Coordinator and Shellfish Coordinator. Funds are included for related project services and supplies, including support for the operation of DELEP’s Science and Technical Advisory Committee (STAC). Implementation of science projects that fill vital knowledge gaps will continue to be another priority (which PDE uses to leverage additional project funds from other sources). Travel funds are budgeted to cover expenses by PDE science staff to attend local, regional, and national meetings/conferences in support of these activities. PDE science staff will continue to work with the STAC and other partners to plan scientific workshops and conferences that address NEP monitoring and science coordination and monitoring 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 CCMP 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, , which lead to innovative proposals that fill vital knowledge gaps identified in the CCMP and State of the Estuary reports. As a result of the current Covid-19 pandemic, the biennial Summit planned for January 2021 has been cancelled due to several factors including: disruptions in scientific work that would be presented at the conference; the potential for ongoing restrictions on large gatherings;



	<p>restricted travel budgets; and the potential inability of partners to provide Summit sponsorship and/or purchase conference registrations. Alternative plans are being discussed, and may include virtual presentations. Additional areas of focus for advancing science programs/partnerships in 2021 will be expanded planning of the new Mussels for Clean Water Initiative, including the mussel production hatchery in Philadelphia, developing and testing new planning and monitoring tools for coastal preparedness projects, and to work with the STAC to spearhead new ways to address underserved CCMP technical strategies that focus on key resources/issues in the Estuary.</p>
<p>Implementers, Partners, and Their Roles</p>	<ul style="list-style-type: none"> • PDE’s Senior Science Director is primarily responsible for developing and implementing innovative programs that address emerging scientific needs, CCMP technical strategies, and vital knowledge gaps. The Senior Science Director works closely with the STAC, numerous other technical workgroups, research partners, and is assisted by other PDE staff as needed. Other responsibilities include participating and reporting to DELEP partners, the EIC, Steering Committee and PDE Board. • PDE’s Science Fellow assists the Senior Science Director on regional technical committees, science programs coordination, and works to support the operational needs of the STAC. • The STAC Chair (currently Kristin Regan, US EPA Region 3) 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 Delaware River Basin Commission, 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).
<p>Outputs/Deliverables</p>	<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 alternatives for the 2021 Summit, with STAC and partner input. • Maintain/grow three or more scientific partnerships resulting in new projects/proposals developed in 2021.



	<ul style="list-style-type: none"> • More than 10 scientific presentations (seminars, keynotes, conferences) by staff on priority topics and other scientific findings (either on-line or in-person). • Participation in meetings, advisory committees, news conferences, and other events by staff to promote the program and advance its goals (12+ meetings per year, (either on-line or in-person). 	
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. • 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	\$71,737 (Staff support of \$68,737, and \$3,000 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, living shorelines and shell recycling in support of innovative restoration projects for use in restoration projects aimed at enhancing water quality. For 2021, PDE will continue to expand on our propagation techniques at the Fairmount Demonstration Hatchery in preparation for the larger scale mussel 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. Planning and design of PDE's hatchery at Bartram's Garden is underway, and ground-breaking is planned for late 2021/early 2022. In addition, PDE is also coordinating with Bartram's Garden on plans for a new environmental education center at Bartram's garden where PDE will be a partner in creating	



	and delivering educational programming.
	PDE's science staff increasingly are 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.
	PDE continues to develop dozens of new research, monitoring and restoration projects each year through competitive grant programs, representing significant leveraging of the NEP support and resulting in significant water quality improvement. For 2021, expected examples will include expanded testing of the effectiveness of mussel beds in removing nitrogen in stormwater ponds, urban shorelines and water supply reservoirs. PDE is also gathering empirical data to test new nutrient removal BMPs related to oyster farms and freshwater mussel beds, using external 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 2021, 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 staff participates in the Monitoring Advisory and Coordination Committee (MACC), Advisory Committee on Climate Change, 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 Operations Director assists in 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. 	
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. • Improved understanding of the role of freshwater and marine shellfish in sustaining water quality and removing nutrient pollutants, including in novel systems such as stormwater ponds, living shorelines and water supply reservoirs. • Enhanced understanding of mussel habitat requirements to improve living shoreline designs. • Participating in NJ oyster stock assessment workshop in February. • Co-chairing the DE Living Shoreline Committee (up to 4 meetings per year) 	
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Field data collection Spring-Fall. • Data analysis & reporting in Winter. 	
Estimated Budget	\$50,181 (Staff support of \$48,481 and staff travel of \$1,700)	
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</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



support 6	(6) protecting coastal waters through the National Estuary Program	X
	(7) protecting larger aquatic ecosystems	
Anticipated Additional Projects/Activities Supported by Other Funding Sources	<p>The above deliverables rely on leveraging additional funds for MACWA and FMRP science efforts in 2021. 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 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. In particular, PDE’s external grant funding is supporting research to parameterize a new Shellfish-Water-Enhancement-Model (SWEM), in support of potential in-water nutrient BMP development.</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 2021 to provide salary support for the Restoration Programs Manager and Habitat Project Coordinator to develop and implement such projects and programs, including further expansion of PDE’s Delaware Estuary Living Shoreline Initiative (DELSI) into the urban corridor of the Delaware River, 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	<p>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</p> <p>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</p> <p>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</p> <p>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</p>
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 develop, 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



	<p>efforts will continue in 2021, 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 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, leveraging larger amounts of funding from other sources for full implementation, and communicating results via meetings, conferences, electronic media, and partnerships.</p>
<p>Implementers, Partners and Their Roles</p>	<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.
<p>Outputs/Deliverables</p>	<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, Philadelphia, and Wilmington for adapting the use of living shorelines in freshwater urban environments to address climate change and sea level rise concerns, while also providing community education and engagement. • Work with partners in the Delaware Bay Oyster Restoration Task Force to advance measurable goals for oysters and sustain shell recycling efforts.
<p>Estimated Milestones/Timeline</p>	<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.



	<ul style="list-style-type: none"> • Testing new site characterization methods, models and decision tools to improve restoration project designs tailored to site-specific ecological issues. • Assessing monitoring framework in the Fall and make edits - presenting updated protocols and results at one conference. • Regular Workgroup meetings (approximately quarterly) including participating on state LS committees when requested. 	
Estimated Budget	\$46,798 (Staff support of \$44,798 and \$2,000 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 developed new decision support tools to guide managers	



	<p>on how to utilize scientific datasets for strategic planning and restoration project validation. In 2021, PDE will continue to assist NJDEP in new decision tools for selecting best restoration tactics and furnishing expert peer review.</p>
	<p>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 2021 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.)</p>
	<p>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.</p>
	<p>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.</p>
	<p>PDE continues to develop and test innovative living shoreline tactics each year, and in 2021 our main focus will be testing freshwater tidal projects that include freshwater mussel beds, SAV and freshwater tidal wetland plants. PDE also intends to expand on model tools to assist managers and local communities in identifying high vulnerability marshes and planning appropriate wetland enhancement tactics.</p>
	<p>With non-NEP funding, PDE hopes to sustain our oyster shell recycling program in northern Delaware in 2021. Contingent on funding, PDE also aims to launch a Pennsylvania shell recycling program in partnership with the Philadelphia Water Department. PDE’s shell recycling program during 2018 and 2019 resulted in shell which has been used to sustain numerous water quality enhancement projects such as living shorelines. We anticipate that the availability of shell will continue to be a major bottleneck for restoration projects in 2021.</p>



F. TECHNICAL REPORT FOR THE ESTUARY AND BAY (TREB)

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

The purpose of the 2022 Technical Report for the Delaware Estuary and Basin (TREB) is to assess the overall environmental condition of the watershed by examining the status and trends of key indicators that reflect the health of its natural systems. The TREB analyzes the best possible current data on the status and trends of more than 50 environmental indicators, including a diverse suite of water, habitat, and living resources. Taken together, the condition of these indicators reflects the overall environmental health of the Delaware River and Bay, and the watershed that drains into it. This report is produced every five years by PDE, as the technical foundation for “State of the Estuary” reports for the public. The 2017 TREB contained data for 60 indicators, organized into eight key categories: watershed land use, water quantity, water quality, habitats, living resources, climate change, and restoration progress. Scientists and managers examined historic, recent current, and predicted future changes in each indicator’s status to develop an understanding of trends. The 2022 report is expected to contain the same key indicator categories, and provide future actions and needs that can potentially improve environmental conditions. PDE will begin development of the 2022 TREB in early 2021, gathering data and working with selected partners to begin data analysis and assessment of results. The final TREB will be completed in 2022.

CCMP Goal Area & Strategy	All
Project/Activity Name	Technical Report for the Estuary and Bay
Project/Activity Objective	To begin work on the development of the 2022 Technical Report for the Estuary and Bay.
Project/Activity Description	PDE will begin working with STAC and other partners to develop the 2022 Technical Report for the Estuary and Bay.
Implementers, Partners and Their Roles	<ul style="list-style-type: none"> • PDE’s Senior Science Director will oversee efforts, assisted by PDE’s Estuary Program Coordinator, Wetlands Coordinator, and Science Fellow. PDE staff will gather and analyze data, write specified chapters of the TREB, and work with partners to oversee development of other portions of the document. • The STAC and partners such as DRBC, University of Delaware, and Rutgers University, play key roles in developing segments of the TREB.
Outputs/Deliverables	<ul style="list-style-type: none"> • Complete initial work toward the creation of the 2022 TREB
Estimated Milestones/Timeline	<ul style="list-style-type: none"> • Begin data collection and analysis in 2021 • Complete TREB in 2022
Estimated Budget	\$52,663 (\$29,395 of staff support, \$268 for staff travel, and \$23,000 for Contractual services)



Long-term Outcomes	<ul style="list-style-type: none"> Continuous assessment and 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). 	
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"> Although a few contractors materially assist PDE in preparing the TREB, dozens of data analysts and authors contribute their time voluntarily, which represents significant leveraging for the overall effort. Some of the updated indicator datasets used in TREB will be analyzed as part of PDE-led grants that are funded externally, such as for MACWA and FMRP. 	



G. ADDENDUM - Urban Waters Federal Partnership

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 took on a stronger leadership role in the Urban Waters Federal Partnership program by incorporating this work as a key element of the PDE Estuary Program Coordinator’s roles and responsibilities. In FY21, PDE will continue to help support the Urban Waters Federal Partnership through coordination with partners, meeting planning and implementation, project tracking and other support services. The Estuary Program Coordinator 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 Federal Partnership Coordination
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	PDE will work with the Federal partner agencies, led by NOAA and USGS, 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’s Estuary Program Coordinator will continue to serve as the Urban Waters Federal Partnership Coordinator; 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 and the implementation of agreed upon new programs that reach the four Urban Water Partnership Locations



Estimated Budget	\$50,000 (\$49,700 Staff support and \$300 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 FY21

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 FY21 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

- ***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 2021 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.



Nutrient Pollution Reduction Supporting Activities

- **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.



V. FY20 WORKPLAN SEMI-ANNUAL PROGRESS REPORT

(For Work Completed Between OCTOBER 1, 2019 - APRIL 30, 2020) (Will be inserted)

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VI. APPENDIX

APPENDIX I - FY21 NEP DETAILED BUDGET

						\$ 712,000
A. Program Office Services						\$ 258,605
Program Planning and Administration and Support of the Management Conference					<i>Subtotal:</i>	\$ 136,184
Personnel		Rate	Hours	Total		
Executive Director	Kathy Klein	\$82.00	890	\$72,980		
Estuary Program Coordinator	Emily Baumbach	\$33.00	199	\$6,567		
					\$79,547	
Fringe						
Executive Director	Kathy Klein	\$19.00	890	\$16,910		
Estuary Program Coordinator	Emily Baumbach	\$9.00	199	\$1,791		
					\$18,701	
					<i>Salary and Fringe:</i>	\$98,248
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 200.432, and as approved by the Director. Total (\$600)						\$600
Indirect (33.93% of personnel plus fringe)						\$33,336
Travel - Program implementation - Tech conferences expenses, regional and tri-state travel. Please see Appendix II for detailed travel information.						\$4,000
Financial Operations Management						<i>Subtotal:</i> \$ 51,863

Personnel		Rate	Hours	Total		
Finance and Administrative Director	Nancy Descano	\$71.00	300	\$21,300		
					\$21,300	
Fringe						
Finance and Administrative Director	Nancy Descano	\$20.00	300	\$6,000		
					\$6,000	
					<i>Salary and Fringe:</i>	\$27,300
Materials for Finance and Administrative Director (\$150) and occasional costs (\$100) for light refreshments and/or meals served at meetings (4 quarterly finance committee meetings including PDE staff and Board Members), (\$50) conferences, training workshops, consistent with 2 CFR 200.432, and as approved by the Director. Total (\$300)						\$300
Indirect (33.93% of personnel plus fringe)						\$9,263
Contractual - Computer Services/IT Support						\$10,000
Materials - Computer replacement for PDE staff						\$5,000
CCMP Project Coordination and Grant Writing & Management					<i>Subtotal:</i>	\$ 33,115
Personnel		Rate	Hours	Total		
Grants Manager	Karen Forst	\$49.00	448	\$21,952		
					\$21,952	
Fringe						
Grants Manager	Karen Forst	\$6.00	448	\$2,688		
					\$2,688	
					<i>Salary and Fringe:</i>	\$24,640

Materials for Grants Manager						\$115
Indirect (33.93% of personnel plus fringe)						\$8,360
PDE Contact Database Management					Subtotal:	\$ 14,464
Personnel		Rate	Hours	Total		
Development Director	Elizabeth Horsey	\$54.00	100	\$5,400		
Development Coordinator	TBD	\$27.00	120	\$3,240		
						\$8,640
Fringe						
Development Director	Elizabeth Horsey	\$12.00	100	\$1,200		
Development Coordinator	TBD	\$8.00	120	\$960		
						\$2,160
						<i>Salary and Fringe:</i>
						\$10,800
Indirect (33.93% of personnel plus fringe)						\$3,664
Coordination of CCMP Implementation Tracking and NEPORT Data Collection & Reporting					Subtotal:	\$ 22,978
Personnel		Rate	Hours	Total		
Estuary Program Coordinator	Emily Baumbach	\$33.00	185	\$6,105		
Science Technical Analyst	TBD	\$28.00	175	\$4,900		
						\$11,005
Fringe						
Estuary Program Coordinator	Emily Baumbach	\$9.00	185	\$1,665		
Science Technical Analyst	TBD	\$9.00	175	\$1,575		
						\$3,240
						<i>Salary and Fringe:</i>
						\$14,245

Contractual - Environmental Justice Consultant						\$2,500
Materials for staff CCMP tracking						\$100
Indirect (33.93% of personnel plus fringe)						\$4,833
Travel - CCMP meeting/workshop regional/tri-state travel for CCMP tracking and NEPORT Data Collection & Reporting. Please see Appendix II for detailed travel information.						\$1,300
B. Education & Outreach Partnerships & Initiatives						\$ 110,839
Holding and Participating in Public Events and Festivals Across the Delaware Estuary (e.g., Coast Days Bay Day)					Subtotal:	\$ 31,759
Personnel		Rate	Hours	Total		
Outreach Coordinator	Sarah Morales	\$27.00	220	\$5,940		
Outreach Associate	TBD	24	290	\$6,960		
					\$12,900	
Fringe						
Outreach Coordinator	Sarah Morales	\$8.00	220	\$1,760		
Outreach Associate	TBD	8	290	\$2,320		
					\$4,080	
					<i>Salary and Fringe:</i>	\$16,980
Other - Various staff supporting events/festivals						\$3,000
Materials for festivals and public events (including registration fees, and educational resources)						\$3,000
Indirect (33.93% of personnel plus fringe)						\$6,779
Travel - Educational Events and Programs - Travel to public outreach events. Please see Appendix II for detailed travel information.						\$2,000

Cultivate and Promote New and Existing Educational Partnerships, Programs, and Materials to Address CCMP Actions					Subtotal:	\$ 79,079
Personnel		Rate	Hours	Total		
Operations Director	Angela Padeletti	\$61.00	380	\$23,180		
Outreach Coordinator	Sarah Morales	\$27.00	340	\$9,180		
Watershed Planning Coordinator	Kaitlin Tucker	\$34.00	340	\$11,560		
					\$43,920	
Fringe						
Operations Director	Angela Padeletti	\$13.00	380	\$4,940		
Outreach Coordinator	Sarah Morales	\$8.00	340	\$2,720		
Watershed Planning Coordinator	Kaitlin Tucker	\$9.00	340	\$3,060		
					\$10,720	
					<i>Salary and Fringe:</i>	\$54,640
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 200.432, and as approved by the Director. Total (\$900)						\$900
Indirect (33.93% of personnel plus fringe)						\$18,539
Contractual costs (design, printing, postage, and social media)						\$3,000
Travel - Local/regional conferences and regional/tristate travel. Please see Appendix II for detailed travel information.						\$2,000
C. Marketing & Communication Initiatives						\$ 71,178
PDE Website Operation & Maintenance					Subtotal:	\$ 18,046
Personnel		Rate	Hours	Total		

Communications Coordinator	Kate Layton	\$37.00	250	\$9,250		
					\$9,250	
Fringe						
Communications Coordinator	Kate Layton	\$11.00	160	\$1,760		
					\$1,760	
					<i>Salary and Fringe:</i>	\$11,010
Materials for Communications Coordinator						\$300
Indirect (33.93% of personnel plus fringe)						\$3,736
Contractual - website hosting & maintenance						\$3,000
Media Outreach and "Estuary News" Newsletter					Subtotal:	\$ 53,132
Personnel		Rate	Hours	Total		
Communications Coordinator	Kate Layton	\$37.00	370	\$13,690		
Executive Director	Kathy Klein	\$82.00	41	\$3,362		
					\$17,052	
Fringe						
Communications Coordinator	Kate Layton	\$11.00	370	\$4,070		
Executive Director	Kathy Klein	\$19.00	41	\$779		
					\$4,849	
					<i>Salary and Fringe:</i>	\$21,901
Materials for media outreach and newsletter production.						\$100
Indirect (33.93% of personnel plus fringe)						\$7,431
Contractual - newsletter design/printing/postage						\$23,000

Travel - Regional/tri-state travel. Please see Appendix II for detailed travel information.						\$700
D. Coordination of Science & Management Needs						\$ 121,918
Coordination of Science & Technical Advisory Committee (STAC) and Science Program Management					Subtotal:	\$ 71,737
Personnel		Rate	Hours	Total		
Senior Science Director	Danielle Kreeger	\$88.00	400	\$35,200		
Science Fellow	TBD	\$23.00	250	\$5,750		
						\$40,950
Fringe						
Senior Science Director	Danielle Kreeger	\$20.00	400	\$8,000		
Science Fellow	TBD	\$8.00	250	\$2,000		
						\$10,000
						<i>Salary and Fringe:</i>
						\$50,950
Materials for STAC, and associated tech 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 200.432, 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)						\$500
Indirect (33.93% of personnel plus fringe)						\$17,287
Travel - Science program conference, regional/tri-state travel for coordination of science & management. Please see Appendix II for detailed travel information.						\$3,000
Science Project Coordination					Subtotal:	\$ 50,181
Personnel		Rate	Hours	Total		
Operations Director	Angela Padeletti	\$61.00	350	\$21,350		

Wetlands Coordinator	LeeAnn Haaf	\$40.00	100	\$4,000		
Shellfish Coordinator	Kurt Cheng	\$40.00	100	\$4,000		
					\$29,350	
Fringe						
Operations Director	Angela Padeletti	\$13.00	350	\$4,550		
Wetlands Coordinator	LeeAnn Haaf	\$10.00	100	\$1,000		
Shellfish Coordinator	Kurt Cheng	\$10.00	100	\$1,000		
					\$6,550	
					<i>Salary and Fringe:</i>	\$35,900
Materials for Science Programs Manager, Shellfish and Wetlands Coordinators.						\$400
Indirect (33.93% of personnel plus fringe)						\$12,181
Travel - Science project, regional/tri-state travel for science project coordination. Please see Appendix II for detailed travel information.						\$1,700
E. Regional Restoration Initiatives & Projects						\$ 46,798
Restoration Project Coordination					<i>Subtotal:</i>	\$ 46,798
Personnel		Rate	Hours	Total		
Restoration Programs Manager	Josh Moody	\$51.00	390	\$19,890		
Habitat Project Coordinator	Sarah Bouboulis	\$30.00	220	\$6,600		
					\$26,490	
Fringe						
Restoration Programs Manager	Josh Moody	\$12.00	390	\$4,680		
Habitat Project Coordinator	Sarah Bouboulis	\$9.00	220	\$1,980		
					\$6,660	

					<i>Salary and Fringe:</i>	\$33,150
Materials for Restoration staff for field and lab work.						\$400
Indirect (33.93% of personnel plus fringe)						\$11,248
Travel - Science restoration conference, regional/tri-state travel for regional restoration projects. Please see Appendix II for detailed travel information.						\$2,000
F. Technical Report for the Estuary and Bay (TREB)						\$52,663
Personnel		Rate	Hours	Total		
Senior Science Director	Danielle Kreeger	\$88.00	40	\$3,520		
Estuary Program Coordinator	Emily Baumbach	\$33.00	30	\$990		
Wetlands Coordinator	LeeAnn Haaf	\$40.00	240	\$9,600		
Science Fellow	TBD	\$23.00	125	\$2,875		
						\$16,985
Fringe						
Senior Science Director	Danielle Kreeger	\$20.00	40	\$800		
Estuary Program Coordinator	Emily Baumbach	\$9.00	30	\$270		
Wetlands Coordinator	LeeAnn Haaf	\$10.00	240	\$2,400		
Science Fellow	TBD	\$8.00	140	\$1,120		
						\$4,590
					<i>Salary and Fringe:</i>	\$21,575
Indirect (33.93% of personnel plus fringe)						\$7,320.40
Travel for TREB meetings						\$268

Contractual - Printing						\$500
Contractual support for TREB development						\$23,000
ADDENDUM- Urban Waters Federal Partnership						\$50,000
Personnel		Rate	Hours	Total		
Estuary Program Coordinator	Emily Baumbach	\$33.00	880	\$29,040		
					\$29,040	
Fringe						
Estuary Program Coordinator	Emily Baumbach	\$9.00	880	\$7,920		
					\$7,920	
					<i>Salary and Fringe:</i>	\$36,960
Materials for Urban Waters						\$199
Indirect (33.93% of personnel plus fringe)						\$12,541
Travel for Urban Waters meetings						\$300
TOTAL						\$712,000

Personnel	\$371,381
Fringe	\$89,918
Materials & Supplies	\$11,914
Contractual	\$65,000
Travel	\$17,268
Other	
Indirect	\$156,519
Total	\$712,000

APPENDIX II - FY21 NEP DETAILED TRAVEL BUDGET *(will be inserted)*



APPENDIX III - FY19 TRAVEL DETAIL REPORT PRIOR FISCAL YEAR (10/1/18 – 9/30/19) *(will be inserted)*



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 IV - INDIRECT RATE AGREEMENT *(Will insert when available)*

