

Partnership for the Delaware Estuary Financing Feasibility Study

Final Report

Prepared by the Environmental Finance Center
University of Maryland



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Executive Summary

Background

The Environmental Finance Center (EFC) at the University of Maryland was contracted by the Partnership for the Delaware Estuary (PDE) to conduct a feasibility study for developing a regional funding and financing entity for scientific research and the protection and restoration of the Delaware River and its watershed lands. The study was intended to determine potential funding sources, governance structure, and necessary legal and regulatory changes for developing and implementing a regional financing effort.

With the guidance of a Steering Committee composed of resource protection and financing experts and PDE board and staff members, the EFC project team identified a number of potential funding and revenue opportunities. The project team then researched each opportunity and developed an objective analysis of the level of the opportunity and any administrative or political barriers, as well as suggested dissemination strategies based on income type.

The final report, designed to provide PDE the information needed for the organization to strategically decide which opportunities to pursue, contains four key sections: (1) an examination of core issues involved; (2) an explanation of research structure and analysis criteria; (3) a detailed discussion of funding opportunities investigated, including administrative considerations, potential barriers, and recommended distribution methods; and (4) a series of recommendations for a financing strategy based on research findings.

Core Issues

- There should be a clear delineation between efforts to develop a regional financing strategy and organizational fund raising efforts.
- Finance is political and initiating a large-scale program like developing and leveraging sustainable revenue sources for

the research and restoration of the Delaware Estuary will require a well-coordinated political strategy over a number of years.

- Political processes demand strong advocacy and although PDE is well positioned to facilitate this, they will need to decide whether this role should be filled within the organization or as a part of the mission of another group.
- Political processes require coordination and PDE's mission and structure make it a logical choice to lead this effort.
- Operating at the watershed level makes ecological sense, but the multi-jurisdictional programs this will require will be difficult to develop.
- The Delaware Estuary is just one of a number of legitimate natural resource priorities in the region and competition for financing resources will be significant; establishing itself as the leading institution for protecting and managing the Estuary and its lands will be crucial for PDE.
- Focusing on developing science and research programs plays to PDE's strengths as an organization, but may be a hard sell for many potential financing sources without an aggressive effort to express the critical need to fund these areas.
- In some cases, the funding source's tie to the science and research needs of the resource may not be self-evident, and PDE will need to be prepared to clearly articulate the connection to agencies and institutions operating in the Estuary.

Funding Opportunity Assessment

Fee based programs offer the greatest opportunity for a significant sustainable source of funds. Assessing a charge based on existing ship docking or pilotage fees could provide ½

to ⅔ of PDE's \$1 million target, and a fee tied to vehicular traffic could potentially bring in multi-millions. For example, if the fee was tied to water services and the \$1 million goal was spread out over all wastewater rate payers in the region, the individual charge would be minimal and the target could be reached rather quickly. All of these opportunities, however, present significant political and legislative barriers as well, and would require an aggressive political strategy to implement successfully.

Voluntary revenue programs, such as check-off, round up, and specialty license plate programs, present fewer political barriers and are therefore more easily implemented. These are, however, voluntary in nature and are a less lucrative and less reliable source of sustained income. No single voluntary opportunity investigated could provide the \$1 million goal on its own. To reach a revenue of \$1 million, these programs would best be implemented as a suite of voluntary donation opportunities and would require the support of an extensive public outreach campaign, which could create a significant administrative challenge for PDE.

The final realm of opportunities examined were ways that PDE might be able to fill an institutional gap in the Estuary's protection. Although these opportunities could provide additional revenue to the organization, for example if PDE were to be designated the recipient of enforcement action fines, these are really more about expanding PDE's influence in the Estuary by directing efforts, such as enforcement and mitigation projects, towards existing Estuary priorities. It appears that there an opportunity for PDE to play a significant role and be a regional leader in enforcement, mitigation, and restoration efforts in the Estuary.

Final Recommendations

- **Facilitate the development of a regional financing strategy:**

This is very much the beginnings of a regional financing strategy that will require coordination with countless institutions, agencies and organizations, and PDE will need to make it clear to these other stakeholders that the desire to leverage revenue sources is directly linked to the protection of the Estuary rather than to merely sustain the organization.

- **Assemble a financing task force:**

A number of the fee-based programs could provide significant levels of income for the organization, but will require that PDE engage legislators and decision-makers to be able to address the associated political and administrative barriers. An Estuary financing task force comprised of political and industry leaders from multiple institutions, companies, and jurisdictions coordinated under PDE's leadership could help make the successful implementation these opportunities a reality.

- **Use a multi-regional approach:**

Development of a multi-regional approach could help PDE alleviate industry concerns over the economic impact of fee-based opportunities.

The Environmental Finance Center, University of Maryland

This project was managed and implemented by the Environmental Finance Center at the University of Maryland. The Environmental Finance Center (EFC) is an independent non-academic center located at the Institute for Governmental Service at the University of Maryland. The EFC has worked with communities in EPA Region 3 for more than 13 years. One of the EFC's core strengths is its ability to bring together organizations and individuals necessary to help communities develop solutions for a wide variety of problems. Through workshops, charrettes, and trainings the EFC has assisted communities with source water protection, stormwater management, green space and green infrastructure planning, low impact development, rate setting for drinking water and wastewater, septic system management, aquatic restoration, and community outreach and education.

Introduction

The Delaware Estuary watershed occupies over 6,700 square miles in four states: Delaware, New Jersey, New York, and Pennsylvania. This tidal estuary extends 134 miles from the mouth of the Delaware Bay between Cape May, New Jersey, and Cape Henlopen, Delaware upstream through Wilmington, Camden, and Philadelphia to the falls of the Delaware River at Trenton, New Jersey. Its tributary watersheds drain urban, suburban, and rural communities. In addition, industrial areas affect the water quality and habitat in the Delaware Estuary in a number of ways.¹

The Environmental Finance Center (EFC) at the University of Maryland was contracted by the Partnership for the Delaware Estuary (PDE) to conduct a feasibility study to determine the potential funding sources, governance structure, and necessary legal and regulatory changes for developing and implementing a regional financing effort in the Delaware Estuary.

As part of this project, the EFC convened a project Steering Committee comprised of the EFC and PDE staff as well as PDE board members and resource protection and financing experts. The purpose and function of the Steering Committee was to provide access to essential information, resources, institutions, and organizations necessary for program analysis. The Steering Committee focused specifically on providing the EFC staff with information related to PDE's goals and objectives, as well as feedback on the direction of research and analytical activities.

Based on discussions which took place during three Steering Committee meetings (held via conference call when necessary) over the course of the spring and summer, the EFC's efforts focused on developing a strategy for funding the science and research needs of the Delaware Estuary as articulated in the organization's 2006 White Paper on the Status and Needs of Science in the Delaware Estuary, while holding open the

opportunity to eventually expand this to include restoration and protecting activities as well.

Next, the EFC set about identifying which potential funding sources best lend themselves to the goals of PDE and stand to provide the greatest financial opportunity for the organization. In addition to guidance and information provided by the project Steering Committee as a group, the EFC staff interviewed key Steering Committee members, stakeholders and resource protection experts individually. These interviews were designed to establish baseline information on the various fees currently being collected in the Estuary, assess the political and administrative feasibility of attaching an Estuary fee or incorporating a voluntary donation program, and identify any potential implementation barriers.

¹ Delaware River Basin Commission Delaware Estuary Monitoring Report; Edward D. Santoro; September 2004.

Core Issues

The Environmental Finance Center's project team identified and analyzed a variety of programs, revenue sources, and opportunities that could potentially fund science and research and watershed protection and restoration activities throughout the Estuary region. Each of these opportunities is discussed in detail in later sections of this report. However, there were a number of core issues that we felt that must be recognized in order for PDE to achieve its funding and program goals.

- **A financing strategy vs. a funding strategy**

In many ways, PDE's efforts to diversify their funding, specifically looking to include rate-based or fee programs, represent the beginnings of a regional financing strategy. Often a critical concern for watershed restoration and protection efforts across the country is the inability to develop and leverage the financing sources, institutions, and instruments necessary for long-term watershed protection and management. This process of identifying potential sustainable, dedicated revenue streams to finance PDE's watershed activities provides a critical first step in a broader restoration and protection effort.

Though PDE will certainly be a critical institution in the restoration financing effort, the fiscal goals of the organization are only one piece to financing the overall restoration needs of the Estuary. Therefore, it is essential for PDE to firmly and aggressively position itself as the most appropriate financing institution for supporting science and research and to consider a strong role in restoration and protection activities in the watershed as well.

- **Finance is political**

Consistent throughout the EFC's research was the recognition of political barriers associated with developing new funding and financing programs. This is obviously not unique to PDE, although achieving interstate cooperation on funding measures is particularly challenging. Of all the issues communities face, the decision about how things get financed and paid for is often the most contentious and political. This is especially true when financing

programs that require a fee on particular activities such as water extraction and discharge, shipping, or vehicular traffic. Though the EFC identified relatively few strict legal barriers related to these programs (in other words, very few of the potential opportunities are currently prohibited by law), the political barriers are significant. Therefore, it is essential that PDE focus its efforts on developing a political coalition within and across the jurisdictions that will work aggressively to make the legislative and institutional adjustments necessary for implementing many of these potential funding and financing opportunities. Without this type of coordinated effort, implementing fee-based programs will be very difficult.

At its core, financing large-scale programs and initiatives, such as the protection and restoration of the Delaware River Estuary, is a political process. And, like other large-scale initiatives, developing and leveraging sustainable revenue sources requires a well-coordinated political strategy implemented over a number of years. There are examples across the country where communities, organizations, and jurisdictions have instituted innovative approaches to financing watershed and environmental protection activities. The types of financing tools developed are often as unique as the resource they were developed to protect. Though each financing design is unique, there is one common thread. They each require organizations working together for years to implement. In short, the project team feels strongly that developing fee-based programs related to shipping, vehicular traffic, and extraction and discharge activities is possible, but will take years to design and implement and will require a coordinated and targeted political strategy.

- **Political processes require strong advocacy**

Another common characteristic of successful financing and funding efforts is that there is always a strong advocacy voice within the process. Financing requires identifying and leveraging revenue sources, and the ultimate revenue source of all financing efforts is the citizens, taxpayers, ratepayers, and consumers in the community. Key decision-makers in the

financing process must be sure that their constituents and customers clearly understand what is at stake and how their money will be used to solve a critical problem. Educating citizens on these issues is the role of non-profits, NGOs, and other advocacy organizations and institutions. Without this voice, there is little chance that community leaders will make the difficult decisions necessary to leverage many of the financing opportunities that we have analyzed as part of this process. Again, advocacy is a critical component in the political and financing process. Therefore, successfully leveraging these fee-based programs will require a sustained, long-term advocacy voice. The Partnership for the Delaware Estuary is uniquely positioned to facilitate the development of this advocacy role. It must now determine if this role should be filled within the organization, or as part of the mission and function of another institution.

- **Political processes require coordination**

In addition to the need for a strong advocacy voice in the watershed, a successful, multi-jurisdictional financing strategy will require significant political coordination and implementation. PDE's structure and mission make it a logical choice for leading and coordinating the effort, in partnership with the many other institutions, communities, jurisdictions, and stakeholders involved in the process.

- **Developing programs in multiple jurisdictions will be difficult**

Watershed management and protection efforts create significant problems for organizations like the Partnership for the Delaware Estuary. On the one hand, watersheds and estuary systems provide an ideal natural structure for organizing restoration and protection efforts. Managing an entire watershed system makes the most sense from a scientific and ecological standpoint. However, the fact that watershed and estuary systems do not conform to geopolitical boundaries makes financing and funding essential programs extremely difficult. The Delaware Estuary watershed is no exception.

The complex range of human activities which impact the resource is exemplified in diversity of the funding and financing opportunities analyzed by the EFC project team. Most require multi-jurisdictional implementation and coordination. As a result, administrative and political barriers will be significant. Again, given these significant barriers and complex issues, it is critical that strong PDE leadership organize the implementation and financing effort.

- **Competing priorities**

The protection and restoration of the Delaware Estuary itself is an important issue for many key institutions, leaders, and communities throughout the watershed. The Estuary, however, is not the only natural resource priority communities throughout the region face. A number of resource protection and restoration efforts are focused on issues and areas that are "upstream" from the Estuary. Though ultimately the environmental impacts and benefits of headwater and tributary programs are felt downstream in the Estuary, which can result in competition for financial resources, public attention, and institutional commitment. For example, drinking water source protection remains a major concern for many communities in the watershed, not the least of which is the City of Philadelphia. Though PDE has a vested interest in supporting source water and drinking water protection efforts, these types of programs can pull financial resources away from Estuary-specific programs and efforts. It is critical that PDE continue to work within the framework of these other natural resource priorities, and to establish itself as the leading institution for protecting, managing, and defending the Estuary and its watershed lands.

- **Competing organizations**

The inevitable result of competing natural resource and community priorities is the development of competing organizations working on those issues. Though the impetus for the creation of PDE was to coordinate the activities of myriad organizations, institutions, and communities working within the Estuary, these very organizations will often compete with the PDE for funds and financing resources. Again, for PDE to be successful in implementing its science and research, and ultimately its restoration and protection programs, it must establish itself as the leader within the Estuary.

- **Science and research are a hard sell**

It was the consensus of the steering committee that PDE focus its initial energy and resources on science and research efforts. In many respects, this represents a strategic approach to funding the organization's activities in the near term. PDE has clearly begun to position itself as the leader in identifying the science and research needs related to the Estuary, and has implemented high profile, effective programs in these areas. However, generating significant resources for science and research activities outside existing academic research funding mechanisms and resources will present a challenge.

Many of the institutions and organizations targeted as potential funding sources by this analysis have a clear impact on the Estuary, and the justification for those institutions and organizations to help fund and finance research activities is clear. However, as potential funders, they will likely desire immediate, on-the-ground restoration results that are high profile and tangible. PDE staff will need to work aggressively to articulate the critical need for funding in these areas. Essentially, PDE must market science and research as a critical additional need in the watershed.

In addition, PDE must market itself as the most appropriate organization for meeting science and research needs. There are other institutions that consider science and research related to the Estuary as a critical component of their mission. These organizations will compete with PDE for research dollars unless there is a clear and compelling case made for coordinating these activities through the Estuary program.

- **Connection to the resource**

Often the most effective and sustainable funding sources will have a direct connection to the resource being protected, i.e. the Estuary. Though this connection does not guarantee financial assistance, justification for the support can be clearly articulated. Drinking water offers a challenging example. Providing for adequate drinking water resources is a critical priority for communities throughout the watershed. However, connecting drinking water protection to a potential science and research effort focused on the Estuary itself may not be self-evident. In addition, there are other established institutions within the watershed conducting research activities related to drinking water supply. For PDE to leverage these types of funding opportunities, it must make the connection between the issues, and again, position itself as the most effective organization for providing critical science and research efforts.²

² As with every rule, there is an exception. There are states and organizations that have developed funding sources that are a step or two removed from the resource being protected. For example, Maryland has implemented very effective license plate and tax check-off programs that fund the work of the Chesapeake Bay Trust. These programs were developed explicitly to fund the Trust's work and provide significant resources to the organization.

Research Structure and Analysis Criteria

In the process of identifying potential funding opportunities, the EFC project team developed a format or structure for analyzing each source. The resulting report format that will allow PDE to compare opportunities and make decision about which programs to pursue. Each of the identified funding opportunities is analyzed according to the following criteria:

Type of opportunity: The EFC's research focused on those opportunities that lend themselves to sustainable, consistent revenue streams. These types of opportunities are normally associated with a fee or a charge levied on a continuous activity, such as charging a fee on ships entering a harbor, cars going through a toll booth, etc. These types of fees can be mandatory, or voluntary. The EFC analyzes each program to determine how revenue will be generated.

Level of opportunity: The level of opportunity refers to the potential revenue associated with the program. This part of the analysis describes how the fee or donation activity would be developed, its rate, and the potential annual revenue. It is important to note that many of the potential programs and opportunities highlighted in this report are new and have not been implemented in other regions or communities across the country. In these cases, it was necessary for the project team to estimate participation rates and over levels of opportunity.

Administrative requirements: One of the most important issues for PDE to consider will be the administrative requirements associated with each program or opportunity. A stated goal of this effort is to keep administrative costs low. The EFC's analysis in this area focuses on potential staffing requirements, structural changes, and program development resources.

Potential barriers: Identifying potential barriers to implementation is a core part of the EFC's analysis and the EFC has identified the political, administrative, and legal barriers associated with each potential program, as well as potential strategies for overcoming those barriers.

Recommended dissemination strategy: An important consideration for developing a funding program is to understand the associated cash flow. Many funding opportunities are predictable and can be disseminated on an annual basis with a significant degree of certainty. Other opportunities are cyclical in nature and are more suited to other types of dissemination efforts. The EFC has grouped each funding program into one of three implementation methods:

- (1) **Pass-Through Funds:** programs that provide steady income that can be granted back out reliably and routinely.
- (2) **Endowment Funds:** those that are invested and limit grants and other awards to interest income or perhaps long-term growth in principle.
- (3) **Time-Release Funds:** programs that provide large sums of money, but somewhat inconsistently, making disbursement over a three or five year period more practical.

Recommended next steps: Finally, the EFC provides recommended next steps for each of the identified funding opportunities.

In addition to applying the above criteria to each funding opportunity, the EFC has provided case studies and examples from around the country of how other organizations have implemented similar programs.

Funding Opportunities

Ultimately the EFC's goal for this project is to provide PDE staff and leadership with a clear understanding of the opportunities for developing sustainable, dedicated revenue streams to support science and research in the watershed as well as Estuary restoration and protection efforts. This is especially important for programs that require multi-year commitments, such as science and research activities. The most effective financing strategies incorporate a variety of revenue sources and programs. In other words, effective financing requires diversification.

The project team, in partnership with the steering committee, identified and analyzed a variety of revenue opportunities. We narrowed our analysis to three core areas: fee-based programs, voluntary programs, and what we call institutional opportunities. Though there are myriad ways that PDE could raise money to support its activities, our work did not focus on opportunities or programs that we felt were more directly related to fundraising programs, such as membership development or special events.

Fee Based Revenue Opportunities

Of all the programs and opportunities that the EFC identified, researched and analyzed, fee based programs provide the most significant opportunity for sustainable funding. However, significant program barriers – political and administrative specifically – must be overcome for these opportunities to become a reality.

Key issues:

- **Beginnings of a financing strategy**

Fee based programs related to public benefits of the Delaware River Estuary, its tributaries, and its watershed offer the most direct connection between the revenue source and the threatened resource. In fact, implementing fee programs based on activities such as shipping, transportation, extraction, and discharge represent key watershed financing tools that communities across the country have focused on for years. This connection is critically important, especially as PDE

works to establish the necessary political relationships and coalitions that will be necessary for developing and implementing a comprehensive financing strategy.

- **Mandatory vs. voluntary fee programs**

Fee-based revenue programs can be either legislatively mandated or voluntarily established. Putting a mandatory fee attached to the activities that have a detrimental effect on the health of the Estuary in place will undoubtedly create significant political and administrative challenges. A voluntary fee program would meet with less political resistance but would likely require just as much administrative effort to establish and would generate little in terms of sustainable income as there is virtually no incentive for participation in the program other than public good will.

- **Long-term implementation strategy**

Many of the programs described here will require long-term implementation strategies. This will require significant administrative resources on the part of PDE, including program development staff time. In addition, if any of these programs are implemented successfully, it will require PDE to assure its own administrative, financial, and legal capacity.

Our analysis focused on two core areas: transportation, including shipping and motor vehicle traffic; and water services including extraction and discharge. Below are summaries of our analysis in all four areas.

Transportation: Shipping

The Delaware River and Bay is home to the fifth largest port complex in the United States in terms of total waterborne commerce. Every year, over 70 million tons of cargo move through the tri-state port complex, which includes the ports of Philadelphia, Pennsylvania; Camden, Gloucester City, and Salem, New Jersey; and Wilmington, Delaware. The port complex has created more than 30,000 jobs, provides more than \$1 billion in wages and generates \$3.5 billion in revenues a year.³

³ University of Delaware Sea Grant Program.

Clearly, shipping is a significant economic driver in the region. However, shipping also has a direct, and often adverse impact on the Estuary. Oil spills, channel dredging, stormwater runoff, and the introduction of invasive species are potential negative externalities from shipping activities that impact the Estuary and the watershed.⁴ The shipping industry relies heavily on the Estuary, and in many ways has contributed to its decline. By instituting a program that would fund science and research programs, PDE would be providing the industry with an opportunity to invest in the protection of the resource.

All port facility users pay a variety of fees to their terminal operators including docking, offloading, storage, berthing, wharfing and other service based fees. The ECF project team interviewed a variety of people involved in the industry and reviewed legislation and other material relevant to the industry, especially in regard to fees, charges, tariffs, and taxes. Based on the input of industry experts, the EFC focused its analysis on the possibility of assessing a charge on docking fees and/or pilots fees.

Revenue opportunity: Docking Fees

In Pennsylvania, the Delaware River Navigation Commission sets a maximum tariff on which terminal operators base their fees, but to remain competitive, terminal operators typically establish their own fees below the established maximum. In Delaware and New Jersey, the terminal operators set their own fees outright. Docking fees are based on vessel tonnage and, in some cases, the cargo or number of containers a vessel carries.

Level of Opportunity: Approximately 4,200 ships annually dock at ports and facilities on the Delaware River. According to the Port of Philadelphia Marine Terminal Association, dockage fees in the Philadelphia area are based on vessel tonnage, and different rates apply depending on a number of factors such as how long a vessel is docked and whether it is offloading cargo or idle. The minimum charge per vessel is \$1,100. If this amount were the approximate charge for every ship that docked at ports

and facilities on the Delaware River, and if a mandated 10% surcharge was attached to the fee, it would yield approximately \$462,000 annually.

Administrative Requirements: The necessary administrative requirements will depend on how the program is structured. Given that the institution for administering and collecting the fees already exists, however, the potential administrative requirements for PDE would be minimal. Dockage fee transactions do not take place in the public sector. The fee system is completely a private market activity conducted between the shipping companies and the port terminal operators.

Because of the private nature of these transactions, there are essentially two ways a fee to support Estuary programs could be assessed and collected: (1) dock operators could voluntarily assess the fee and turn it over to PDE⁵, or (2) each jurisdiction could legislatively assess the charge and create a mechanism for its collection, with the funds ultimately transferred to PDE. If an Estuary protection fee were mandated, the port terminal operators would be responsible for collecting the fee and then transferring the revenue to a state regulatory or financing authority. The money would then be transferred or granted to PDE to fund science and research activities. Again, with this type of arrangement, there would be no additional administrative requirements for PDE.⁶

Potential Barriers: There will be significant barriers associated with implementing either of the potential fee structures. Though the voluntary program would presumably overcome some of the political resistance, there will nonetheless be difficulties associated with developing a sustainable program of this type. First, several sources have indicated that the profit margins in the shipping industry are very small, and any change in the cost of doing business at a port or terminal facility will be viewed as harmful to the local economy with claims that the extra costs will send shipping vessels to ports and facilities with lower costs. Without judging the merits of these claims, the fact that they will be made, and vociferously, suggests that voluntary compliance with an environmental surcharge may prove difficult to establish. In addition, if the program is met with significant resistance, it will be very difficult to sustain over the long-term, thereby making the revenue much less sustainable than would be preferred.

⁴ Internalizing environmental externalities is a key issue in financing natural resource and environmental protection, and provides a significant justification for fee based programs. In short, environmental externalities occur when the private costs associated with an activity, such as degradation of a natural resource, do not equal the public cost of mitigating or correcting that activity. As a result, social benefits and private costs differ, which in turn results in inefficient resource allocation. By implementing fee based programs, PDE would essentially be improving the efficiency of markets in the region.

⁵ However, there is no existing incentive for dock owners to do so.

⁶ There would be additional administrative requirements for the terminal operators as well as state agencies. See Case Study: Maryland Chesapeake Bay Surcharge Program for a case study of fee collection and dissemination.

Obviously a mandated fee program would have significant barriers to implementation. It is a near certainty that the shipping industry would lobby aggressively to block any additional mandatory fee requirements. A mandatory fee system will require a significant lobbying effort by PDE and its partners as well as an effort at bridge-building with the shipping industry to both educate and lessen resistance to the concept.

Dissemination Strategy: The distribution strategy associated with these fees will again depend on how the program is structured, and whether or not it is legislatively mandated. If the program is voluntary, the revenue will not be guaranteed. There are examples of voluntary revenue programs that can provide very stable annual revenue, but all of these require many different funding sources, i.e., many consumers or rate-payers. Because there would be relatively few participants in the program, only 4,200 ships annually, and a handful of docks, even small percentages of non-compliance or participation can lead to significant shifts in revenue. Therefore, a voluntary fee would be most appropriate for a time-release funding program. If, however, the program were legislatively mandated, revenues would be much more stable and sustainable. Therefore, a pass-through funding program would be appropriate.

Revenue opportunity: Pilotage Fees

Unlike dockage fees, which are not mandated, pilotage fees are mandated by jurisdictions. Any vessel over 100 tons is required to hire a pilot, and the pilotage fees are based on the tonnage and beam of the vessel. On the Delaware River these fees are established by the states of Delaware and Pennsylvania; and though the fee rate is set by the states, the collection of fees occurs as private transactions between the Pilot's Association and the shipping companies; no government agencies are involved.

Level of Opportunity: The average pilot fee is approximately \$5,000 for seven to nine hours of work. Approximately 350 vessels a month require pilots for both entering and exiting the Delaware River, amounting to approximately 8,400 piloted trips annually. If a two percent surcharge was added to the pilotage fee, then the surcharge would yield approximately \$840,000 annually.

Administrative Requirements: The administrative requirements are identical to the docking fee opportunity in most respects. A voluntary program could be established, or one that is legislatively mandated. Again, because the institutional framework is in place is in place to collect and administer a fee

program, PDE administrative costs could be minimized. Like the docking fee program, the program would be administered by the state agencies involved.

Potential Barriers: Developing a collection process for the fee could be a challenge since this is a private transaction between the vessel and the pilot. In addition, the political barriers associated with developing a fee program around pilotage fees are identical to those related to the docking fee opportunity. Both the shipping industry and the Piloting Association will almost certainly view any new fee program, either voluntary or mandated, with significant skepticism. Again, an established, effective political strategy will be essential for making making the programs a reality.

Dissemination Strategy: Again, the most appropriate revenue distribution strategy will depend on whether or not the program is legislatively mandated. A time-release strategy would be most appropriate for voluntary fee programs.

Next Steps and Recommendations for Shipping Fee Based Opportunities:

- **Focus on pilotage fee programs**

Administratively, the pilotage fee programs provide the most efficient opportunity. And though the political barriers will be significant,⁷ a program based on pilotage fees also offers the most significant revenue opportunities. A significant advantage with these program opportunities is their direct connection to the resource, and the connection is most significant with the pilotage fees. The entire purpose of requiring piloting is to ensure the safe passage of vessels entering the Estuary and its tributaries. In other words, piloting reduces the risk associated with the activity. Therefore, it is appropriate that fees associated developed to further mitigate the risk of shipping activity be developed around the pilotage fees.

- **Focus on the petroleum industry**

The petroleum industry is a major economic driver within the Estuary watershed. In fact, the Delaware River is home to the second largest oil port in the United States, handling about 85% of the East Coast's oil imports. This creates a significant opportunity for developing a fee around petroleum shipping. Many shipping industry leaders we have interviewed over the past several months have expressed the concern that additional shipping fees may push business

⁷ A recommendation on political strategy is provided in this document.

to other ports and jurisdictions. Though the project team has no documents or research verifying these claims, the perception that this occur creates a significant political and implementation barrier.

The situation is not the same for petroleum, however. The infrastructure required to transport and process petroleum-based products is relatively permanent by nature. Therefore, a \$1 million per year fee on the industry to fund science and research within the Estuary would not in all likelihood result in the industry immigrating to other regions of the country. In addition, it could be argued that the most significant environmental externality associated with shipping activities in the Estuary are related to oil spills. Therefore, a fee based on these activities would have a direct connection to the resource. It is important to note that focusing on the petroleum industry might require developing a fee program outside the dockage and pilotage fee systems already in place. For instance, it may be most appropriate to develop a fee based on the lightering process.

Transportation: Motor Vehicles

Like shipping, vehicular traffic through bridges and tunnels in the region contribute to the degradation of the Delaware River and the Estuary, though the connection to the resource is a step or two removed. Clearly, the impact of motor vehicle transportation on watersheds in general, and the Delaware River watershed specifically, is significant. In fact, runoff from roads and other impervious surfaces constitutes the most acute threat to water resources in one of the Delaware River's major tributaries, the Schuylkill River. Unlike shipping transportation, however, motor vehicle transportation does not directly benefit from the river system. Therefore, the connection is not as close. This is a critical factor when considering financing institutions that have been developed around motor vehicle traffic.

Revenue opportunity: Bridge and tunnel tolls

Five entities control tolls on roads and bridges in the Delaware River Estuary, and all are government agencies: (1) The Delaware Transportation Authority, (2) the South Jersey Transportation Authority, (3) the Pennsylvania Turnpike Commission, (4) the Delaware River and Bay Authority, and (5) the Delaware River Port Authority.

Level of Opportunity: If each agency were to assess a \$.05 per toll Estuary Fee for science and research activities that could be administered for PDE related activities, based on current annual vehicle counts, the fee would yield over \$15 million annually.

Entity	Vehicles Annually ⁸	Fares	\$.05 Annual Yield
Delaware Transportation Authority	28,000,000	\$.25 - \$3.00	\$1,400,000
South Jersey Transportation Authority	43,800,000	\$.50 - \$2.00	\$2,190,000
Pennsylvania Turnpike Commission	162,425,000	\$1.00 - \$21.00	\$8,121,250
Delaware River and Bay Authority	16,425,000	\$3.00	\$821,250
Delaware River Port Authority	55,000,000	\$3.00	\$2,750,000
			\$15,282,500

Table 1. Estimated Annual Yield for Motor Vehicle Surcharge

Administrative Requirements: As with shipping fees, it would seem that administrative requirements for the operation of this type of opportunity would be minimal for PDE. The collection of the fee could be conducted by the relevant authorities through the toll process already in place and funds could be electronically transferred to PDE at intervals agreed upon by all parties. However, the lobbying and outreach efforts that would be necessary to establish these programs would present an administrative and programmatic challenge for the organization.

Potential Barriers: Although the potential barriers to capitalizing on this type of opportunity vary slightly from one Authority to the next (see Transportation Authorities Operating in the Estuary) the common obstacle lies in how these Authorities were formed. All were legislatively established and all have language in their enabling legislation that expressly limits how toll revenues can be spent. To make PDE an eligible recipient of any of these funds would require legislative approval by the jurisdictional entities involved (i.e.: the state or states in which

⁸ This data not limited to bridge and tunnel traffic, highway toll traffic is included as well.

the Authority was established, as well as Congress in the case of interstate compacts).

PDE would face a significant challenge both lobbying to initiate the legislative amendment and convincing legislators and the Authorities that PDE is uniquely qualified to administer the funds and holds some sort of competitive advantage over other organizations and even state agencies. Pushing for a legislative amendment on toll revenue spending in Delaware may prove particularly difficult as the state's Department of Transportation is facing a \$2.7 billion deficit in their six-year transportation plan. This could well make legislators less receptive to using an increase in tolls to fund a set-aside for the Estuary.

Dissemination Strategy: The distribution strategy associated with these fees will be heavily dependant on how the program is structured, and whether or not the fee is legislatively mandated. If the program is voluntary, the revenue will not be guaranteed, and time-release funding would be most appropriate. However, if the program were established legislatively, revenues would be much more stable and sustainable, and a pass-through funding program would appropriate.

Next Steps and Recommendations for Vehicular Fee Based Opportunities:

- **Develop a motor vehicles working group.** Although there are considerable political and administrative challenges associated with the prospect of attaching a fee for the Estuary to motor vehicle transportation, this opportunity merits further investigation because of its potential to generate significant and sustainable revenue. PDE should develop a motor vehicles working group that includes political and industry leaders from all jurisdictions to more closely examine this opportunity and more specifically determine the obstacles and next steps involved.
- **Focus on E-ZPass program.** In the following section of this report, which highlights a variety of voluntary funding opportunities, the EFC project team examines the E-ZPass program. This multi-jurisdictional program provides a very effective framework and structure for leveraging sustainable, dedicated revenue streams.

Sidebar: Transportation Authorities Operating in the Estuary

Delaware Transportation Authority

The DTA is responsible for building, operating and maintaining airports, bridges, highways, parking, ports, as well as transit and turnpike facilities in Delaware. It exercises broad power in determining the amount of its tolls. The established tolls do not involve public hearings nor are the level of tolls subject to approval by any person or entity. DTA's enabling legislation, however, does expressly limit how it can use public revenue; namely, to pay for its operating expenses, to pay the principle and interest on any bonds issued under its authority, and to fund the costs of constructing feeder roads and related facilities used by travelers. Moreover, DTA legislation states that the Authority "will consider the purposes of [the DTA] when establishing such charges, fares, fees, rates, rentals and tolls."

This legislative language leaves little room for toll revenue to be spent on environmental concerns. No express authority exists that allows the DTA to fund environmental projects. In the case of DTA, PDE would need to address three factors before it could receive funds derived from tolls on roads and bridges in Delaware. First, PDE would have to persuade the DTA (composed, for the most part, by the Delaware Secretary of Transportation, the Director of Financial Management and Budget, and the Administrator of the Transportation Trust Fund) that it was worthy of funding. Second, to avoid shifting toll funds away from existing programs, PDE would have to persuade the DTA to raise tolls at one or more locations. And finally, PDE would need to win the approval of the Delaware General Assembly to amend the DTA's enabling legislation to allow the entity to fund environmental projects.

Obtaining a dedicated and continuing stream of funds from Delaware tolls would require even more effort. Specifically, PDE would need to successful lobby state officials to consider establishing a surcharge or set-aside program for environmental science and/or restoration and protection. According to source with the state Department of Transportation, the surcharge or set aside program would require the enactment of new legislation, and because all spending programs in Delaware require extraordinary majorities to become law, the legislation most likely would require approval by 60 percent of the members of the General Assembly. PDE would need to persuade elected officials and officials in the Transportation Department that it, and not some other environmental organization or some coalition of environmental organizations, is the appropriate recipient of state toll revenue.

Even then, however, PDE will need to persuade policy makers that it, and not the state agency charged with protecting the state's environment, is a better recipient of set aside funds. State environmental agencies are the logical recipient of set aside funds targeting environmental efforts. Channeling state

money to them, rather than to an independent non-profit such as PDE, provides policy-makers assurances that state money will be used to fund projects the state sees as high priority. Making a non-profit entity with a regional focus a dedicated recipient of state set aside funds will require a great deal of political finesse to achieve.

South Jersey Transportation Authority

The SJTA maintains, operates, and supports a variety of transportation facilities, including include highways, airports, transit systems, and parking facilities. The Authority exists to serve the transportation needs of South Jersey, and part of its revenue comes from tolls on highways that exist in counties in the Estuary (the SJTA serves the counties of Atlantic, Camden, Cape May, Cumberland, Gloucester, and Salem). It is expressly authorized to fund economic development projects, although such projects must be connected to a transportation project, which, according to SJTA's enabling legislation, must be linked to a transportation facility.

This statutory language constrains SJTA's ability to fund environmental projects. Whatever environmental projects can be funded would need to be connected to economic development in and around a transportation facility. Moreover, this type of program would likely only provide funding on a project-by-project basis. Sustained, long-term funding for PDE might be possible if (1) an environmental project was tied to a particular transportation facility, and (2) the environmental project required a sustained and long term effort. Whenever the specific project ended, so would the funds from the SJTA. Legislative changes would appear necessary before the SJTA could be a more flexible source of PDE funds.

Pennsylvania Turnpike Commission

The PTC was created to construct, operate, and maintain the state's turnpike system, which includes all tunnels and bridges connected to the turnpike. The PTC is the entity that sets toll amounts on the turnpike and is charged with using toll revenue to pay for the costs of Turnpike construction and maintenance. Although there is no legislative language restricting PTC to using toll revenue strictly for construction and maintenance, the enabling legislation does not in any way imply that the PTC could spend revenue on projects not related to the highway. The entry barrier here, therefore, is both political and legislative. PDE may only be able to receive funds from the PTC if new legislation is proposed and adopted.

Delaware River and Bay Authority

The tolls on the Delaware Memorial Bridge are controlled by the DRBA, a bi-state government agency created by an interstate compact (Delaware and New Jersey). The same entity also runs the Cape May-Lewes Ferry System, the Three Forts Ferry Crossing on the Delaware River, and the Airport Facility at New Castle, Delaware. The DRBA is charged with providing transportation links between the two signatory states, and it is empowered to use its resources to participate in economic development ventures in both states.

DRBA's enabling legislation expressly states that revenue be used for these purposes. However, its mission to fund economic development initiatives may open the door to funding PDE efforts. Specifically, the legislation provides that DRBA funding could support "developments" that involve aquaculture, beach restoration, and shoreline preservation (including wet-lands and open land acquisition), although such developments must be "required for the sound economic development of the area." This language would give DRBA managers the freedom to fund PDE when projects can yield obvious economic benefits.

DRBA's enabling statute may also allow for two types of funding: grant funding for specific, short term projects and, in the best of all possible worlds, a continuing stream of funds in the form of a set aside. In each case, the project would need to demonstrate an obvious impact on economic development.

Given the legislative restraints, PDE should expect any set aside would need to be earmarked in some way to a project with tangible economic benefits. PDE could lobby for a change in this legislation to allow the funding of environmental projects. However, amending DRBA's legislation would be particularly challenging as it would require the approval of both the state legislatures of Delaware and New Jersey, and, because it is an interstate compact, congressional approval as well.

Delaware River Port Authority

DRPA, created by Congress and the states of Pennsylvania and New Jersey under an interstate compact, owns and operates four bridges and, through various subsidiaries, the PATCO Speedline, the RiverLink Ferry, the Philadelphia Cruise Terminal at Pier 1 and the AmeriPort Intermodal Rail Center. Its purpose, according to its enabling legislation, is varied but focuses on the commercial and economic development of the "Port District" counties, including transportation facilities such as bridges, transit systems, and ports.

DRPA is authorized to finance and operate "any project...from funds available after appropriate allocation for maintenance of bridges and other capital facilities." To this end, the DRPA established and operates its Community Giving Fund. The Fund, which is available to non-profits, finances projects with charitable or civic purposes within the Port District counties (Bucks, Chester, Delaware and Philadelphia in Pennsylvania, and the counties of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Ocean, and Salem in New Jersey). PDE may be eligible to receive funding from the Community Giving Fund.

PDE could pursue a more ambitious funding initiative from DRPA. The language in its enabling legislation is so broad that DRPA may be able to entertain requests for grant revenues and also set asides for environmental work. Unlike other transportation entities, no legislative changes appear necessary for DRPA to become a source of general revenue for the PDE.

Water Services: Extraction

The Delaware River system provides an extraordinary number of services to the citizens of the watershed (as well as many citizens living outside its watershed). And many of these services are related to extracting water. For example, the river is a major drinking water source, supplying drinking water to approximately 5% of the population of the United States, approximately 15 million people. And over 5 billion gallons a day of the river basin's waters are used to cool thermoelectric power plants. There are approximately 400 surface water extractors within the Delaware River watershed, and these extraction services provide an opportunity for developing Delaware River watershed fee programs targeting restoration, protection, and research related activities.⁹

Revenue opportunity: Attaching additional fees to water extraction permits.

There are several different approaches to developing a fee systems based on water extraction. The first approach would be to leverage the Delaware River Basin Commission's water allocation program. One of the responsibilities of the Delaware River Basin Commission (DRBC) is to assist in water resource allocation within the watershed. As part of this process, DRBC contracts with the Army Corps of Engineers to operate a number of dams and impoundments that help manage the salt line in times of low flow. Some of these impoundments serve as reservoirs for industry use, as well as drinking water for New York citizens. As part of its allocation responsibility, DRBC collects user fees from approximately 250 surface water extractors within the Basin. These fees, which total approximately \$2.5 million per year, are directed into the Water Supply Storage Fund and are used to cover payments to the Army Corps of Engineers for operations, maintenance, and improvement projects related to the reservoir system that enable DRBC to manage the Estuary's salt line.

The Water Supply Storage Fund fees are charged as rates, rather than flat fees, and are based on a number of factors including the amount of water involved, whether the use is consumptive or non-consumptive, and the extractor's location on the river. The fees were developed based on the initial anticipated costs to be paid to the Corps over time. Those extracting prior to 1961 were grandfathered and exempt from the fees, but change in ownership ends this entitlement. Regulatory decisions and project review fees bring in some additional revenue, but these strictly cover administrative costs associated with the program. In New Jersey the Water Resources Management section of

the New Jersey Bureau of Water Allocation permits all extractions in excess of 100,000 gallons per day. This includes water diverted for public water supplies as well as irrigation and industrial purposes. In Pennsylvania, as a result of the recently passed Act 220, all extractors pulling 10,000 gallons a day or more are required to register with the Department of Environmental Protection's Bureau of Watershed Management and periodically file reports on their water use. There is no fee associated with registration and reporting process.

A second approach for developing a fee based on extraction services would be to work through the legislative process in each state to mandate a fee to fund restoration, protection, and research activities within the watershed. In effect, the program would charge each water customer, either citizens or industries, based on the amount of water consumed. The advantage of this type of program is that it would spread the cost among millions of citizens within the watershed. In addition the institutional structure is already in place for many extractors, specifically the citizens drinking the water, which will keep administrative costs low.

Level of Opportunity: The DRBC water allocation permits average around \$6,500 - \$13,000 per year. A 10% increase in the fee would result in about \$130,000 per year on the high end.

New Jersey has 739 active permits currently that range from approximately \$5,700 to \$17,000. A 10% increase in these fees would result in an additional half million to one million dollars; however, the 739 permits are statewide. It would likely be necessary to focus strictly on a subset of Estuary-relevant counties in New Jersey.¹⁰

Due to homeland security concerns, information on water intakes in Pennsylvania is not a matter of public record, and the number of registered intakes is not available.¹¹

If, instead of attaching a fee to the permit process, a fee were charged to each water user, it would generate millions of dollars in revenue.

¹⁰ The data regarding active water permits in New Jersey found at http://datamine.state.nj.us/DEP_OPRA/OpraMain/report?report=Currently+Effective+Water+Allocation+Permits+by+County is broken down by county and can be used to focus on any desired set of Estuary-relevant counties to develop a more precise estimate.

¹¹ A basin-specific report on the number of intakes registered can be created by special request. Contact Dave Jostenski with the Pennsylvania Department of Environmental Protection at djostenski@state.pa.us.

⁹ DRBC, personal communication

Administrative Requirements: Implementing a program through DRBC would not result in any additional administrative needs on the part of PDE. The program would be administered through the existing DRBC fee program. Implementation in New Jersey could function in much the same way. In Pennsylvania, however, with a registration and reporting procedure, but no fee collection process in place there could be additional administrative challenges for PDE.

Potential Barriers: DRBC's fees have not been adjusted in more than 20 years, and any change in rates would have to come from the commissioners and would have to pass through a public hearing process.

Beyond the existing political barriers associated with leveraging the DRBC fee structure, there is the very real issue of competing priorities and organizations. In many respects, DRBC has a similar mission and focus to that of PDE. Clearly there are distinctions in mission, scope, and program focus. However, one similarity is the commitment to research. DRBC has established its capability in the research field, and implementing a fee program that would require the organization to transfer funds to PDE would require a very frank discussion between the two organizations and a clear understanding of roles within a broader science and research strategy.

In addition, as stated previously, although there is a registration and reporting procedure in place in Pennsylvania, there is no fee associated with this or collection process in place. Creating a fee that would go toward the Estuary would present both political and administrative challenges for PDE.

Dissemination Strategy: Given that the program would be based on dedicated annual fees, pass-through distribution of the resulting funds would be most appropriate.

Water Services: Discharge

In addition to providing necessary water resources to citizens and communities throughout the region, the Delaware River also provides a very convenient resource for disposing of the region's waste. In fact, the Delaware River watershed arguably supports more sewage and industrial discharge than just about any other river system in the country. And other than perhaps shipping, no other activity is more directly associated with the resource that PDE is protecting than that of discharging waste. As a result, discharge activities provide significant revenue generating opportunities for PDE in its effort to support science and research activities.

Revenue opportunity: Attaching additional fees to water discharge permits.

Fee based programs centered on discharge activities would be structured in much the same way as those that might be structured around extraction. The first possibility would be to attach an additional fee to the permitting process. Unlike extraction activities, however, there is no central institution, like DRBC, to leverage. A program based on leveraging existing permit fees would require developing a separate program within each state. Essentially, each jurisdiction would add to each permit fee an additional charge to fund PDE to conduct science and research activities.

Again, as was discussed with water extraction, the second approach to developing a fee structure would be to charge an additional fee to each discharge customer, either industrial or residential, in the basin. The state of Maryland and the Chesapeake Bay surcharge program set the precedence for a discharge fee based program.¹² Essentially, each municipality or public sewer system is responsible for collecting the fee and sending it back to the Maryland Department of the Environment to fund wastewater treatment upgrades.

Level of Opportunity: There are more than 260 NPDES wastewater permits in counties bordering the Delaware River in New Jersey, Pennsylvania, and Delaware.¹³ To reach the \$1 million science and research program goal, each permittee would have to be charged approximately \$3,800 per year, or \$19,000 for the five year permit term. With respect to publicly-owned treatment works, when calculated per rate payer, the annual fee is very low.

Administrative Requirements: As with all of the fee-based programs, the administrative burden would fall on the state agencies associated with the program. There would be little additional administrative requirements for PDE.

Potential Barriers: The most significant barrier is political. Any adjustment of state discharge fees would require legislative approval. In addition, legislative approval would need to be given in three jurisdictions. If that were the case, the political barriers would be reduced significantly. However, the administrative burden on the part of PDE, in the form of program development and outreach activity, would increase significantly.

¹² See Case Study: Maryland Chesapeake Bay Surcharge Program.

¹³ Information provided by the U.S. Environmental Protection Agency web site: http://www.epa.gov/enviro/html/pccs/pccs_query

Featured Case Study: Maryland's Chesapeake Bay Surcharge Program

Background

The Chesapeake Bay has experienced a continued decline in water quality due in most part to excess nutrients such as nitrogen and phosphorous. Wastewater treatment effluent has been found to be one of the major contributors to the presence of these nutrients in the Bay.

To address this, in May of 2004 Maryland Governor Bob Ehrlich signed Senate Bill 320 – The Bay Restoration Fund. This legislation created a dedicated fund, the Chesapeake and Atlantic Coastal Bays Restoration Fund, intended to fund improving the state's 66 wastewater treatment facilities by putting enhanced nutrient removal technology in place through a surcharge placed on wastewater treatment users. This level of technology would enable Maryland to initiate efforts to further reduce nutrient loads in the Bay by more than 7.5 million pounds of nitrogen per year and over 260 thousand pounds of phosphorus per year. This represents more than a third of Maryland's Chesapeake Bay 2000 Agreement commitment.

How the Program Operates

A monthly fee of \$2.50 is charged on the individual sewer bills to those served by a wastewater treatment plant (commercial operations are charged on a per equivalent dwelling unit scale based on usage). Septic system users pay a \$30 annual fee. The Maryland Department of the Environment administers these funds, distributing them to the utilities to upgrade wastewater treatment plants to reduce nitrogen discharge which causes algae blooms that harm fish, crabs, native plants, and other aquatic life. The revenues from septic tank users are used to upgrade or replace failing septic systems and to provide financial assistance to farmers to help plant cover crops to prevent nutrient runoff from agricultural land.

The 18 member Bay Restoration Fund Advisory Committee consists of Governor-appointed representatives of the state House and Senate, state wastewater facilities, local businesses, local health departments, conservation organizations, a state institution of higher learning, the Maryland Association of Counties, and the Maryland Municipal League, as well as the Secretaries of the Departments of Planning, the Environment, Natural Resources, Agriculture, and Budget and Management. This board is responsible for evaluating the financing and effectiveness of facility upgrades and recommending changes to the program.

Current Program Status

Wastewater treatment funds were collected beginning January 1, 2005 by the relevant water or sewer authority. The charge for septic system began on October 1, 2005 and is collected by county governments.

The flush tax is estimated to generate \$65 million annually from sewage plant users. This will be used to cover \$700 million in revenue bonds used to partially fund close to \$1 billion in capital projects to upgrade the state's major sewage treatment plants. The tax is estimated to generate \$12.6 million from septic system users. Sixty percent of this will be used for septic system upgrades, while the remaining 40% will be used for cover crop activities.¹⁴

Implications for PDE

Several of Maryland's state agencies receive a portion of the fund's proceeds to cover related administrative costs. The Comptroller's Office receives .5% and the local government or billing authority receives up to 5% for billing and fund management activities. Maryland's Department of the Environment receives up to 1.5% of wastewater treatment plant funds and up to 8% of septic systems funds to cover in-house facility implementation costs.

In addition, successfully establishing a fee system of this nature requires close coordination with state legislators and officials. Any attempt to implement a program such as this would necessitate the careful cultivation of political relationships.

¹⁴ Much of the statistical information included here was gathered from the Maryland Department of the Environment's website at <http://www.mde.state.md.us/Water/CBWRF/index.asp>.

Dissemination Strategy: As with other fee-based programs, a program developed around discharge permit fees would be most appropriately centered on a pass-through dissemination program.

Next Steps and Recommendations for Water Resources Based Opportunities:

- **Focus on water extraction activities**

From a financing perspective, both water extraction and water discharge activities play a critical role in paying for the restoration and protection of the Estuary. Water extractors are the primary beneficiary of a clean watershed and should be helping to fund and finance its protection. Water dischargers are a major polluter into the watershed, and in turn, should pay to help reduce excessive pollutants and to protect the resource. However, the focus for any polluter should be to fund and finance the reduction in the emissions of the associated pollutant. In other words, any fee attached to discharge activities should focus on reducing the pollutant associated with that activity. This would make it difficult to transfer that fee for other watershed protection and restoration efforts. For example, any fee charged to wastewater utilities and ratepayers should be used to upgrade those utilities to appropriate levels of technology and best management practices.

Water extractors on the other hand, specifically drinking water extractors, have a vested interest in the protection and restoration of the watershed that supplies their drinking water. Therefore, a fee based system focusing on science, research, restoration, and protection of the watershed should focus on the extraction industry. It is important to note that in the vast majority of cases, the same ratepayers are involved in both industries. Ultimately the source of all revenue to protect the Delaware River Estuary and its watershed lands will be the citizens and ratepayers that rely on the resource. All of these citizens require both drinking water and wastewater services of some type. Therefore, focusing a fee program on extraction would not result in the uneven distribution of costs.

It is important to note that the project team feels very strongly that water dischargers have a critical role to play in the protection and restoration of the Estuary. In fact, for any long-term restoration effort to be successful, it will require aggressive enforcement of existing water quality laws and the implementation of state of the art wastewater treatment best management practices. Appropriate financing for these activities can take many forms, but what is essential is that

the source of the financing be the extractors, ratepayers, and users of the systems. Again, it is not our recommendation that water dischargers be let off the hook so to speak, but that the revenue that is generated as part of their activities be used to improve the performance of those activities.

Voluntary Revenue Opportunities

The second core revenue opportunity for PDE is in the form of voluntary revenue programs. Though these types of opportunities take a variety of administrative and institutional forms, there are some characteristics common to each of them.

Key issues:

- **Fewer political barriers.**

These programs tend to have fewer political barriers associated with implementation. Unlike the fee-based opportunities discussed in the previous section, most of the voluntary revenue opportunities that the project team researched and analyzed do not require legislative or political decisions to implement. Though there are significant administrative and bureaucratic issues and barriers to overcome, many of these opportunities have been successfully established in other jurisdictions and communities across the country.

- **Disconnect from the resource.**

Though a few of the voluntary programs have a clear and direct connection to the resource, such as check off programs for fishing and boating licenses, several others are at best loosely connected to the Estuary and the need for science and research activities. Overcoming this barrier will require marketing and public relations activities on the part of PDE staff.

- **Significant administrative requirements.**

There are several voluntary revenue programs that offer immediate opportunities for revenue growth for PDE. However, no single voluntary program analyzed by the project team will generate enough revenue to fund all of PDE's science and research needs. Therefore, PDE will need to implement several voluntary programs in several jurisdictions and institutions. This will create administrative requirements on the part of the organization.

- **Significant competition for resources.**

Though PDE is well positioned to capture some of these voluntary programs, the organization should expect significant competition for the funding from other nonprofit organizations across the region and, in some cases, state

agencies. To pursue these opportunities, PDE will need to demonstrate a competitive advantage over other organizations vying for these funds and must be clearly recognized and widely known in political circles.

Although putting these programs in place is not without its challenges, because these opportunities present fewer political barriers than mandatory fee based programs, they will likely face less political resistance and have a greater chance for successful implementation. However, all of these opportunities are, as stated, voluntary in nature and therefore do not hold the same revenue generating potential and reliability as mandatory fee programs.

Our analysis of voluntary revenue opportunities focused on two core areas: the existing license plate revenue sharing program and a collection of voluntary donation check-off opportunities. The following is a summary of our analysis of each opportunity.

Revenue Opportunity: license plate programs

The majority of states in the U.S. offer specialty license plates, which enable motorists to show their dedication to a particular cause, organization, or institution. Some of these are revenue sharing plates which are sold at an additional charge that is then used to fund specific programs.

The State of Delaware's Division of Motor Vehicles offers a specialty revenue sharing plate featuring the Estuary, and PDE shares proceeds from the plate with the Delaware Center for Inland Bays. Under the current program, \$20 from every \$35 plate sold is shared equally by PDE and the Center for Inland Bays. Pennsylvania's wildlife conservation plate sends \$15 of the \$35 charge to the Wild Resource Conservation Fund. These funds are used to support projects that protect threatened and endangered species in the state as well as related education and outreach efforts. When revenues from the initial saw-whet owl version of the plate, introduced in 1993, drastically dropped from \$1.5 million in 1995 to approximately \$100,000 in 1997, the market for the plate appeared to be saturated and state officials began looking at ways to revitalize the program. In 2000, the state introduced a new "river otter" plate; more than 20,000 were sold in the first six months of the program raising more than \$300,000 for the fund.

New Jersey's Conserve Wildlife plate sends \$40 of the plate's \$50 price tag to the State's Endangered and Nongame Species Fund. In 2004, the plate generated just over \$200,000 for programs serving nongame and endangered species.

Theoretically, the Estuary plate program could be extended

into these other Estuary states. However, the New Jersey Motor Vehicle Commission offers 15 different specialty plates, five dedicated to wildlife and environmentally related causes, and Pennsylvania offers four specialty plates including the one supporting wildlife conservation. With this level of market saturation and competition for donations, it is not likely that PDE would realize a level of income from an Estuary plate in these states that would offset the organizational resources establishing and administering the programs would require.

Level of Opportunity: Many states with similar specialty plate programs funding natural resource and non-game wildlife protection have experienced steady declines in income as more and more specialty plate options become available to motorists.¹⁵ States with particularly successful specialty plate programs have turned to renewal fees and plate redesign and reissue for additional income.

Minnesota's Critical Habitats Plate, for example, is issued by the Driver and Vehicle Services division of the Minnesota Department of Public Safety (DPS), and in addition to the \$10 handling fee that goes to the state DPS, the applicant commits to \$30 minimum annual contribution to the Reinvest in Minnesota Critical Habitat Matching Account. Proceeds of this account are then used to match private donations for the acquisition and conservation of critical fish and wildlife habitats. In the ten years since its inception, 96,000 plates have been issued generating more than \$17 million and enabling the state's Department of Natural Resources to purchase more than 4,000 acres of land.

Currently PDE receives no income from Estuary plate renewals. Amending the Estuary plate's enabling legislation to include an additional donation to PDE and the Center for Inland Bays based on plate renewals would increase revenues from this source significantly.¹⁶

Administrative Requirements: If the Estuary portion of the renewal fee was collected as a part of the existing tag renewal process and the fees could be transferred to PDE in the same manner in which new tag fees are, little if any staffing, structural, or programmatic changes would be necessary.

Potential Barriers: The establishment of the existing license plate program was a legislative act. Any adjustment to the original program will require a legislative amendment and 3/5 approval of the Delaware General Assembly. In addition, if

¹⁵ Actual participation rates were not available for Delaware, Pennsylvania or New Jersey

¹⁶ The Chesapeake Bay Trust license plate program in Maryland provides an excellent example of how this can be done.

Featured Case Study: Chesapeake Bay Trust Treasure the Chesapeake License Plate Program

Background

The Chesapeake Bay Trust (the Trust) was established by Maryland's General Assembly in 1985 as a private, nonprofit organization in an effort to develop greater public awareness and participation in the protection and restoration of the Bay and its tributaries. The Trust does this through a variety of grant programs that support nonprofit organizations, civic and community groups, schools and public agencies in their Bay-related efforts. Approximately 90% of the Trust's funding is devoted to on-the-ground restoration, protection, and education programs.

The Trust is governed by a Board of Trustees. This 19 member board includes 14 Governor-appointed representatives of Maryland businesses, local governments, educational institutions, and conservation organizations. The remaining five members of the board consist of the president of the state Senate, the speaker of the state House, and the leaders from the Departments of Natural Resources, Agriculture, and the Environment.

Unlike many other institutions of this nature, the Chesapeake Bay Trust was provided no initial endowment and had little in the way of funding for its first several years. In 1988, the General Assembly established a voluntary donation check-off on state tax forms for the Chesapeake Bay and Endangered Species Fund. These donations are split equally between the Trust and the Department of Natural Resources Wildlife and Heritage Program. Trust revenues from the tax check-off program are approximately \$550,000 annually, with around 2% of the state's taxpayers participating. Donations have ranged from \$1 to \$1000 with an average donation of \$26.

How the Program Operates

In 1990, the Treasure the Chesapeake, also known as the Bay plate, license plate program was legislatively established. This program operates as a revenue sharing program between the Trust and the Maryland Motor Vehicle Administration (MVA). The Trust receives \$12 from the one-time \$20 purchase fee for the plate and the remaining funds go to MVA. Revenues from the sale of these commemorative plates steadily increased and the program had brought in \$9.8 million to the Trust by the end of its first decade. By 2005, approximately 10% of vehicles in the state display the Bay plate and over \$800,000 were collected from the program for the year.

Current Program Status

With concerns that the program was approaching the point of market saturation, the Trust began to look at the potential to expand the program to include revenue collection on renewal fees. After working closely with several key legislators, an amendment to the establishing legislation that provided the Trust \$10 biannually for each Bay plate renewal was passed in 2003. In 2005, more than \$1 million was collected from Bay plate renewal fees alone.¹⁷

Implications for PDE

Amending the Treasure the Chesapeake license plate program to include the renewal process provided a clear financial benefit for the Trust. Developing strategic relationships with members of the legislature was key to successful implementation. The current legislation does, however, sunset in 2007, so the Trust will need to be vigilant in maintaining the organization's relationship with these legislators to ensure the legislation is renewed.

¹⁷ Works cited include: *Maryland Senate Bill 380: Chesapeake Bay Commemorative License Plate*, (January, 1990); *Maryland Senate Bill 638: Vehicle Laws Special and Commemorative License Plates – Renewal and Sunset*, (2003); *Chesapeake Bay Trust 2005 Annual Report*, (May, 2006). All documents are available in their entirety from the Environmental Finance Center, University of Maryland.

the experiences of other states are any indication, PDE can expect increasing competition from other organizations for these funds.

Dissemination Strategy: Because this is an annual payment to PDE that can be fairly well estimated from one year to the next, it would best serve the organization as pass through funds.

Revenue opportunity: state tax check-off

Tax return check-off programs of all types generated nearly \$33 million in the U.S. in 2001. More than half the states in the country currently offer tax return check-off opportunities that fund various types of state-based wildlife management programs. In 2002 nongame wildlife check-off programs were the most productive check-off programs in the country; however, only two states involved registered participation rates of more than 2%.¹⁸ In addition, as with specialty license plate programs, in more recent years, many state wildlife programs have seen a decline in donations as states allow more voluntary check-off programs to be added to tax forms. Some wildlife programs have experienced losses as great as 30% to 60% recently, and several programs have become virtually obsolete.

The State of Delaware Division of Revenue currently gives tax-payers the opportunity to contribute to ten different charities and state-oriented funds through a check-off option on their personal income tax forms, including one for non-game wildlife. The Delaware non-game wildlife check-off program experiences a .4% participation rate with an average donation of just over \$14.50. The program has generated approximately \$1 million for DNREC's Non-game and Endangered Species Program over the course of its 12 year history.

New Jersey's Department of the Treasury and the Pennsylvania Department of Revenue each offer five voluntary donation check-off programs to their residents, one of which in each state funds conservation efforts.¹⁹ The participation rate for New Jersey's program where funds go to the state's Endangered and Nongame Species Program is .5% and tax payers make an

average donation of just under \$13 program. In Pennsylvania, donations go to the Wild Resources Conservation Fund. The average donation is just over \$7.50 and the participation rate is .3%.

Level of Opportunity: Assuming the tax check-off fund for the Estuary experienced a participation rate similar to that of the current state program for nongame wildlife, PDE could expect approximately \$23,000 in proceeds from Delaware tax payers annually. If the other Estuary states added the check-off to their returns as well, New Jersey would generate \$266,500 for the fund and Pennsylvania \$130,500.²⁰ However, with the increasing level of competition for tax check-off dollars and the limited income the Delaware non-game check-off has generated to date, PDE may want to consider carefully whether the potential revenue from this opportunity would truly offset the administrative effort of establishing the program, particularly in the other Estuary states.

Administrative Requirements: Although there is a collection process in place for these types of programs at the Delaware Division of Revenue, there is no existing fund for the Estuary. The effort to have this fund legislatively established, as well as the subsequent promotional efforts that would be necessary to ensure its success would present a significant administrative challenge to PDE. The same would be true for the other Estuary states.

Potential Barriers: The establishment of an Estuary check-off and an associated fund or account will require the legislative approval of the Delaware General Assembly. Given the intense competition and limited income potential, this may not be the best use of limited organizational resources. In addition, DNREC, the recipient of the current state tax check-off program funds, has been a supporter of PDE both financially and programmatically. Establishing a separate tax check-off opportunity for the Estuary would put PDE in direct competition with DNREC for voluntary funds and could damage the existing relationship.

Dissemination Strategy: If PDE were to pursue this opportunity, the predictable, annual income cycle would best serve the organization as pass through funds.

¹⁸ Federation of Tax Administrators. 2003. *Check-off Programs See Strong Growth*. <http://www.taxadmin.org/FTA/rate/Checkoff03.html>

¹⁹ Federation of Tax Administrators. 2003. *Check-off Programs See Strong Growth*. <http://www.taxadmin.org/FTA/rate/Checkoff03.html>

²⁰ Estimate based on the number of individual income tax returns filed in each state in 2005.

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Revenue Opportunity: E-ZPass

A 2006 survey of the 43 largest toll agencies in the U.S. indicated that nearly 60% of all tolling in the country is now conducted electronically, typically through the use of radio-frequency identification, or RFID, transponders. By the end of 2005, there were approximately 22.5 million transponders in use in the United States; in other words, approximately 10% of all vehicles in the country have a transponder. These devices are tied to a motorist's debit, credit card, or checking account so that tolls can be electronically deducted directly from the account each time the transponder is used, eliminating the need to stop and pay a cash toll.

E-ZPass is the electronic tolling system used on most toll bridges and roads in the eastern United States. The system is in use from Virginia to Maine, and has recently extended westward into Illinois. All states use the same RFID technology that allows travelers to have their tolls charged electronically throughout the network. Toll facilities in New Jersey, Delaware and Pennsylvania all participate in E-ZPass, although through various state-based systems.

The E-ZPass program is usually managed within a state's transportation authority, and each has its own billing and customer service center which is connected to other state centers and programs by a secure network (the "reciprocity network"). The agencies also set their own customer account policies. Areas of variation include the refundable deposit or nonrefundable charge for a tag, periodic maintenance fees, paper statement fees, the low balance threshold, and replenishment amounts. The E-ZPass is usually offered as a debit account: tolls are deducted from prepayments made by the users. Users may opt to have prepayments automatically deposited when their account is low, or they may submit prepayments manually. Some agencies also allow postpaid accounts with a security deposit (which effectively renders them much like prepaid accounts with a different replenishment policy).

Level of opportunity: The potential level of opportunity for the PDE is significant. There are millions of E-ZPass customers in Delaware, Pennsylvania, and New Jersey. A voluntary check off program could be developed in a way that provides PDE with a donation each time a customer's account is either automatically or manually updated. This revolving nature of the program would provide long-term revenue stability and growth.

Administrative requirements: As was discussed above, there will certainly be administrative requirements associated with developing and implementing an E-ZPass program. However, in most ways, the program would function in a similar if not identical fashion as existing revenue programs. Therefore, administrative requirements would be in line with PDE's existing capacity.

Potential barriers: Because this program would be new to the E-ZPass program, there will almost certainly be obstacles that will need to be overcome. Through analysis of similar check-off programs across the country, as well as through conversations with E-ZPass officials, the EFC project team has identified the following core barriers that must be considered.

Political: In this case, political refers to the internal politics and decision-making with public agencies. Though E-ZPass officials have been receptive to the idea of developing this type of voluntary program, it will represent a very different approach to the program than has been done in the past. For that reason, the PDE leadership must immediately engage both agency officials as well as state elected officials at the highest levels to move the idea for the project forward.

Administrative: This program will require the transportation authorities and the E-ZPass programs in each state to administer a program that is very new and innovative. PDE and its staff and leadership must work closely with agency staff to ensure that the program is developed in a way that reduces administrative hurdles and inefficiencies.

With regard to new accounts, there will be few additional administrative requirements on the part of PDE; however, developing and implementing a campaign to reach existing E-ZPass account holders will present an administrative challenge.²¹

Legal: There is one potential legal barrier that must be overcome in order for this opportunity to be leveraged. In some jurisdictions, it is possible that the program's bonding

²¹ A web or email based outreach campaign that provides existing E-ZPass account holders information on the Estuary, the link between vehicular traffic and the degradation of the resources, and the voluntary donation program as well as instructions on how to participate would likely create the least financial and administrative burden.

would prohibit use of E-ZPass funds for any other purpose. It is possible that a new bond would have to be issued that would allow for this type of program.

Dissemination strategy: This program has the potential to provide sustained, dedicated revenue streams. Therefore, revenue would support pass-through fund programs, such as science and research activities.

Revenue Opportunity: Cruise Lines

Major cruise lines have been departing from the Port of Philadelphia for nearly a decade. Travelers have embraced the city as a launch point as evidenced by the steadily increasing number of cruises departing from the port. The 36 cruises scheduled to depart from Philadelphia in 2006 is nearly double that of five years ago and more than four times that of 1998.

The Philadelphia Cruise Terminal at Pier One is an operation of the Delaware River Port Authority's (DRPA) Port of Philadelphia and Camden. Norwegian Cruise Line's Norwegian Crown and Royal Caribbean's Empress of the Sea are both homeported in Philadelphia. Business revenue from the cruise terminal has more than doubled in the past three years, and DRPA is projecting that the 36 cruises scheduled to depart from the terminal in 2006 will bring \$35 million and approximately 131,000 passengers to the port.

Like the rest of the shipping industry, cruise ship traffic has a direct and often adverse impact on the health of the Estuary. Unlike the rest of the shipping industry, however, cruise ships and the Philadelphia Cruise Terminal at Pier One actually stand to benefit from the aesthetically pleasing backdrop a healthy Estuary could provide in the form of greater passenger satisfaction and more referral and repeat business. A voluntary donation program that provides cruise passengers the opportunity to make a donation to the Estuary would enable the cruise lines to garner a "greener" public image with minimal financial burden attached.

Level of Opportunity: Lindblad Expeditions offers their cruise guests a voluntary donation opportunity similar to this since 2004 (see accompanying case study). The average participating

rate per guest for the three seasons the program has been in operation is 24% with an average donation of \$61.53. Even with participation rates adjusted to account for the specialized nature of Lindblad's cruises, based on this example and Philadelphia Cruise Terminal usage data from CruisePhilly, this could be a significant income generator for PDE. This revenue could be doubled if the cruise lines could be persuaded to provide a corporate match to the voluntary donations made by passengers.

Administrative Requirements: As with many of the voluntary donation opportunities, collection and transfer of any donated funds would not be difficult and could likely be conducted by the cruise lines themselves. The primary challenge for PDE will be in working with the cruise line(s) to develop an appropriate campaign and then conducting the necessary follow-up promotion to make the campaign successful.

Potential Barriers: Sources at DRPA have suggested the competition issues expressed in regard to attaching a fee to docking or pilotage would apply even to voluntary programs in the cruise industry as well. Both cruise lines operating from the Port of Philadelphia, however, are heavily involved in a variety of charitable and community service programs and organizations.²² With this in mind, a number of organizations in the area are likely interested in developing a charitable relationship with these businesses and competition for these dollars could be significant.

Dissemination strategy: This program has the potential to provide a relatively predictable annual payment and therefore would support pass-through fund programs, such as science and research activities.

²² Although not a sustainable source of income, it should be noted that another opportunity within this industry may be available to PDE through the Cruise Industry Charitable Foundation (CICF) of which both Norwegian and Royal Caribbean are members. CICF is a 501(c) 3 in Arlington, Virginia that seeks to support programs that improve the communities in which their member cruise lines operate. Environmental Preservation Issues is one of their four charitable focus areas and proposed projects can span up to three years. CICF does not operate on a set granting cycle, but rather accepts letters of inquiry year-round; guidelines are available at <http://www.iccl.org/foundation/guidelines.cfm>

Featured Case Study: Baja Forever!

Background

Founded in 1979 by Sven-Olof Lindblad as a division of Lindblad Travel, Lindblad Expeditions focuses on providing its customers with a unique travel experience. The expeditions are catered to adventure travelers and visit in locations that traditional cruise ships do not typically travel to. From its founding, Lindblad has had a deep connection and concern for the natural environment and its conservation.

How the Program Operates

Lindblad's Baja Forever! campaign was created in 2004 and enables cruise guests the opportunity to make voluntary donations to support the Gulf of California Conservation Fund. This fund, developed with the collaborative efforts of Lindblad and several NGO's, is dedicated to conservation priorities in Baja and the Sea of Cortez and is overseen by an advisory board that includes the Mexican Fund for Nature Conservation, World Wildlife Fund, The Nature Conservancy, and Conservation International.

Cruise guests are informed about the program and given the opportunity to participate in a number of ways. Every night an information card the size of a standard playing card is placed in the cabin during turndown with information about conservation in Baja. During the course of the voyage, an onboard naturalist makes a presentation on the cruises' destination(s) and includes information describing the Baja Forever! campaign. Shortly after, while the guests are dining, an "Invitation to Participate" is placed in their cabins, which includes information about the Gulf of California Conservation Fund as well as a voluntary donation form. These solicitations are also supported by educational materials in the shipboard guest directory, on posters found throughout the ship, and on the company's website.

Current Program Status

Every dollar that guests contribute on board is matched by the Mexican Fund for Nature Conservation and the Packard Foundation and if a guest makes a donation of \$250 or more, they receive a travel voucher good for \$250 on future travel with Lindblad Expeditions. As of July 2006, Lindblad Expeditions' guests have contributed more than \$300,000 to the fund. When matched by partnering organizations, these donations total more than \$900,000.

Contribution levels generally vary greatly depending upon the nature of the trip as well as its duration. Also, contributions in the early portion of the travel season are typically less, most likely because only a portion of these voyages are spent in Baja and the Gulf of California.

For the latter part of the 2003/2004 season the total participation rate was 30%. The rate of participation per booking (couples booking together for example) was 35%. The average donation per guest was \$76.78 and the average donation per booking was \$127.15. For the 2004/2005 season the total participation rate per guest was 18%. The rate of participation based on bookings was 23%. The average donation per guest was \$47.54 and the average donation per booking was \$83.87. For the 2005/2006 season the total participation rate of guests was 24%. The rate of participation based on bookings was 32%. The average donation per guest was \$60.26 and the average donation per booking was \$107.60.²³

Implications for PDE

This program has been hugely successful for Lindblad Expeditions, as has the similar campaign they operate to fund conservation in the Galapagos. This is undoubtedly directly related to the somewhat specialized nature of the cruises involved and having a large percentage of clientele with a predisposition to environmental causes. To be best served by a program of this nature, PDE would be wise to work closely with one of the cruise lines operating out of the Port of Philadelphia on a cross marketing campaign that involves dedicated PDE supporters.

²³ Information provided by Mathew Lachesnez-Heude, Environmental Manager of Lindblad Expeditions.

Revenue Opportunity: Fishing and Hunting Licenses

Recreational fishing and hunting are multi-billion dollar pastimes in the U.S. In 2003, more than 28 million fishing licenses, tags, permits and stamps were purchased by anglers in the U.S. generating over half a billion dollars. Hunting licenses have been equally lucrative; the 15 million licenses sold in the U.S. in 2003 brought in nearly \$680 million in revenues. These license programs are a vital source of income to state fish and wildlife agencies and also determine how much federal aid a state receives from the Wildlife and Sport Fish Recreation Program.²⁴

In Delaware, both resident and nonresident recreational anglers between the ages of 16 and 65 fishing in nontidal waters are required to have a DNREC Fish and Wildlife Division issued fishing license. These licenses cost \$8.50 for residents and \$15 for nonresidents. Anyone wishing to fish specifically for trout must purchase an additional trout stamp for \$4 to \$6. A salt-water license is not in place, but currently under review in the state according to DNREC officials. In 2003, the State issued nearly 25,000 fishing permits bringing in over \$215,000.

DNREC also issues hunting licenses and stamps. Residents between the ages of 15 and 65 pay \$12.50 for an annual hunting license. All nonresidents over the age of 15 are required to have a license and are charged \$86. Those wishing to hunt migratory waterfowl in the state must purchase an additional \$9 waterfowl stamp.²⁵ In 2004 more than 28,000 resident and nonresident licenses and stamps were purchased generating more than \$250,000 for the state.

In New Jersey all recreational freshwater anglers over the age of 16 wishing to fish in state waters are required to have a license issued by the state's Department of Environmental Protection's Division of Fish and Wildlife (there is no recreational marine license). The license is \$22.50 for residents and \$34 for nonresidents. As in Delaware, anyone wishing to fish for trout must purchase an additional trout stamp at \$10.50 for residents and \$20 for nonresidents. Nearly 167,000 fishing licenses were sold in New Jersey in 2003.

²⁴ 2003 License Trends. International Association of Fish and Wildlife Agencies' Automated Wildlife Data Systems. http://www.iafwa-awds.com/LicenseSales/Annual_Trends/fy_2003_license_trends.htm which credits the US Fish and Wildlife Service as having compiled the data.

²⁵ It should be noted that the initial legislation creating the waterfowl stamp calls for half of the income generated to be passed onto a nonprofit organization for activities that develop waterfowl propagation areas in Canada. Delaware Code: Title 7, Section 5, §517.

Anyone hunting in New Jersey is required to have a hunting license. Firearm licenses are \$27.50 for residents and \$135.50 for nonresidents, with a one-day license option available for \$12.50. Bow and arrow licenses are \$31.50 for residents and \$135.50 for nonresidents. Additional pheasant and quail (\$40) or waterfowl stamps (\$5-\$10) are required for those species and the state also offers an All Around Sportsman license option for residents that permits fishing as well as both firearm and bow and arrow hunting for \$72.25. In 2003, over 81,000 hunting licenses were sold in the state.

Anglers in Pennsylvania between the ages of 16 and 64 must purchase a license from the state's Fish and Boat Commission. Residents are charged \$22 and nonresidents \$52. An additional Trout/Salmon stamp is available for \$9. Hunting in the state is managed by the Pennsylvania Game Commission who offers several dozen license options that range in price from \$10 to over \$100 based on residency, hunting method, and intended species. More than 2 million hunting and fishing licenses were purchased in the state in 2003.

States across the country have voluntary donation check-off options on hunting and fishing license applications. Although programs vary from state to state, these donations fund a broad spectrum of conservation and social efforts including wildlife and fisheries management, general public and youth wildlife education programs, and "hunters for the hungry" activities.

Adding a check-off to the hunting and fishing license applications similar to the type used on state tax returns would give those applying the opportunity to make an additional voluntary contribution to a fund for the Delaware Estuary that would be administered by PDE.

Level of Opportunity: Available participation rates for other programs vary drastically and indicate income levels for PDE anywhere from \$90,000 to \$460,000 if the program is implemented Estuary-wide.

The Access Yes! program in Wyoming collects donations from hunters to enable Wyoming Fish and Game to purchase land easements. The program netted \$118,874 in donations from the 600,000 licenses sold in 2005, or approximately 20 cents for every license sold. The Turn-In-Poachers program in Iowa (see case study), which collects \$2 from an application check-off, expects to collect \$25,000 to \$30,000 in its inaugural year and experienced an approximate 2% participation rate.

Using the Iowa example, PDE could only expect to collect around \$1,000 from the sale of hunting and fishing licenses in the state. If the program were expanded to include the other Estuary states, the organization could expect to collect an additional \$90,000, with \$80,000 coming from Pennsylvania

licenses and \$10,000 from New Jersey. Under the Wyoming example, Delaware licenses could bring in \$10,000, New Jersey would generate \$50,000 and Pennsylvania \$400,000.²⁶

Administrative Requirements: Because the donations would be collected as a part of the existing license application process, little administrative effort would be required of PDE. However, the lobbying and promotional activities that would be required

²⁶ Although the Pennsylvania numbers are based on the cases for which participation data is available, these are likely generous estimates considering that much of the hunting and fishing in the state takes place outside the Estuary

to successfully launch a program of this type would present a significant programmatic challenge for PDE.

Potential Barriers: Competition for these funds would be the greatest challenge. Although persuading the state to include a voluntary donation check-off on applications for fishing and hunting licenses may not be too difficult, convincing the state that PDE and not a state wildlife agency would be the appropriate recipient for the funds might prove to be far more complicated.

Dissemination Strategy: If PDE were to pursue this opportunity, annual income cycle would best serve the organization as pass through funds.

Featured Case Study: Iowa's Turn-In-Poachers

Background

Turn-In-Poachers (TIP), a non-profit organization operating in a number of U.S. states and Canada, was started by concerned sportsmen and women dedicated to better protecting wildlife. TIP programs provide support to the enforcement arm of state fish and game agencies by issuing cash rewards to those who provide verifiable and actionable information on poaching activities. Award amounts are dependant on the severity of the offense and can range from \$100 to \$250 for information related to the poaching of small game, fish, birds, or furbearing animals to \$1000 for information on the poaching of threatened or endangered species or commercial poaching operations.

How the Program Operates

Turn-In- Poachers in Iowa was established in August of 1985 and works in coordination with the Iowa Department of Natural Resources Law Enforcement Bureau. A board consisting of Iowa sportsmen and women as well as representatives of a number of state conservation organizations (such as Iowa Bowhunters, Izaak Walton chapters, Pheasants Forever chapters, Iowa Wildlife Federation) establishes operating policies and also solicits private funds to support the program. All rewards paid to informants on successful TIP cases are private monies which the TIP board has collected through membership fees, private donations, and sale of promotional items such as T-shirts and caps.

To mark the twentieth anniversary of the Iowa TIP program, the state's Department of Natural Resources (DNR) created a voluntary initiative geared towards the state's hunters and anglers. The new program allows hunting and fishing license applicants to make a \$2 voluntary donation to the TIP program.

Current Program Status

Although only in its first year, the program has met with a fair amount of initial success. During the first week of the program, more than \$400 was voluntarily donated to the TIP fund and Iowa DNR officials associated with the program anticipate that annual donations for the first year will top \$25,000 to \$30,000.²⁷

	Anglers	Angling TIP Donators	Hunters	Small Game Donators
Resident	301,691	5,437 (2%)	82,685	2,236 (2.7%)
Non-Resident	30,541	336 (1%)	13,586	1,620 (12 %)

Table 2: TIP Donations for August 2005 through August 2006

Implications for PDE

In this case, establishing the program was relatively easy and did not require legislation or departmental rule. A one-page document entitled "Financial Transfer of Funds Agreement Between The Iowa Department of Natural Resources And The Turn-In-Poachers Of Iowa, Inc. A Private Organization" created the program and satisfied the department's legal requirements. This allows for the transfer of the donation funds from the department's Fish & Wildlife license fund to the Turn-in-Poachers organization. Iowa DNR officials feel that the fact that funds being shifted were voluntary donation dollars rather than direct license revenues made this a much simpler process.

²⁷ All information compiled from <http://www.iowadnr.com/law/tip.html> and personal conversations with Steve Derman, Executive Officer, Law Enforcement Bureau, Iowa Department of Natural Resources.

Revenue Opportunity: Boater Registrations

There are more than 13.6 million boats registered in the U.S., its commonwealth and territories.²⁸ Much like fishing and hunting, recreational boating is a multi-billion dollar industry in this country.

All vessels owned by Delaware residents, propelled by mechanical power, and used on Delaware waters are required to be registered with DNREC. Registration fees range from \$10 to \$60 depending on the length of the craft. Boaters who have registered their vehicles in another state but would like to access Delaware boat ramps must purchase a ramp certificate for \$35. Last year the State issued over 52,000 boater registrations.

All titled boats operating on New Jersey waters and not registered in another state must register with the New Jersey Motor Vehicles Commission. The annual registration fees for recreational boats range from \$12 to \$250 depending on the length of the craft. In 2005, a total of 200,000 boats were registered in the state. In Pennsylvania, all motorized watercraft must be registered with the state's Fish and Boat Commission. Fees for recreational craft range from \$26 to \$52 depending on the length of the boat and are renewed every two years. Just over 354,000 boats were registered in Pennsylvania in 2004.

A few states offer boater's the opportunity to make voluntary donations to as a part of the registration process. The state of Washington has an application check-off options that send funds to a nonprofit organization. The EFC suggests adding a check-off to the boater registration application similar to the type used on state tax returns that would give boaters the opportunity to make an additional voluntary contribution to a fund for the Delaware Estuary that would be administered by PDE.

Level of Opportunity: Based on the example of the Maritime Historic Restoration and Preservation Account in Washington where donations average \$15,000 annually (once administrative

fees are taken out) from a total of approximately 285,000 boater registrations, PDE could expect to collect less than \$5,000 from boaters in Delaware each year. If this program were expanded across the Estuary, it would bring in approximately \$30,000. However, this may be an unfairly low estimate as the program in Washington is not supported by any outreach or public education campaign.

Administrative Requirements: For this opportunity to be successful, it will need the support of a carefully developed marketing and outreach campaign.

Potential Barriers: Often in the case of a new boat purchase, the dealer handles the registration process on behalf of the owner, meaning the owner would not have direct contact with the application or an opportunity to see the check-off option firsthand. This could be addressed through an outreach program with dealers encouraging them to promote the check-off program and ask the purchaser if they would like to donate to the Estuary, however this does create an additional administrative load for PDE.

Dissemination Strategy: If PDE were to pursue this opportunity, the annual income cycle would best serve the organization as pass through funds.

²⁸ Moore, Chris and Ron Sarver, editors. 2000. *Reference Guide to State Boating Laws, 6th Edition*. National Association of State Boating Law Administrators. Lexington, KY. pg 4.

Featured Case Study: Maritime Historic Restoration and Preservation Account

Background

The Maritime Historic Restoration and Preservation Account was created in the state of Washington to help fund the activities of two organizations dedicated to of the state's nautical traditions and the conservation of the vessels associated with it. The account, which was legislatively established in 1996²⁹, receives funds that are voluntarily donated by boaters through a check-off option available on the both the paper and online versions of the state's boater registration application.

How the Program Operates

The funds are collected by the state's Department of Licensing and are then turned over to the account which is managed by the state treasurer. Both the Treasurer's Office and the state's Department Licensing receive a portion of the account's proceeds to cover the administrative costs of handling the account. Each fiscal year after these administrative costs are deducted from the account, half of the remaining funds are given to the Grays Harbor Historical Seaport Authority and the other half are given to the Steamer Virginia V Foundation.³⁰

Current Program Status

Though the Grays Harbor Historical Seaport Authority and the Steamer Virginia V Foundation undoubtedly benefit from the maritime historic restoration and preservation account, the amount that they receive every year from the account is not significant. The first year that the program was in existence, the organizations received approximately \$7,500, but proceeds have slowly declined over the past several years. In 2005, each organization received just over \$7,000 and the donations account for a very small portion of the organizations' overall funding. Last year, for example, the Maritime Historic Restoration and Preservation Account funds accounted for a mere 0.5% of the Grays Harbor Historical Seaport Authority's annual earnings of approximately \$1.4 million.³¹

Implications for PDE

Although this program benefits from its integration into both the paper and online boater registration process, the account and its connection to the two recipient organizations is not heavily promoted and has little, if any, associated outreach activities. Also, voluntary donations through the boater registration process are the sole source of income for the Account. PDE could expect a significantly more profitable program if boater registrations were just one of several voluntary donation opportunities feeding into a regional account for science and research and these opportunities were promoted and supported by a thorough, well-developed public outreach campaign.

²⁹ Revised Code of Washington, Title 88, Chapter 02, Section 053.

³⁰ According to the enabling legislation, if either organization ceases to exist, the remaining organization will receive all proceeds from the account. If both organizations cease to exist, then the Department of Licensing will no longer collect voluntary donation upon vessel registration. Any money remaining in the account will go to the state to be split between their Office of Archeology and Historic Preservation and their Parks Renewal and Stewardship account.

³¹ Because the Grays Harbor Historical Seaport Authority is a municipal nonprofit and the Steamer *Virginia V* Foundation is an entirely private operation that is not publicly funded, the information regarding donors and specific donations is not matter of public record and consequently, participation levels for the program are not known.

Revenue Opportunity: Utility Bill Round-Up programs

Round-up programs allow bank and utility customers to mathematically round their bill up to the nearest whole dollar and assign the additional charge to a savings account or charitable organization (for example a bill for \$69.21 becomes \$70 with the additional 79 cents going to charity).

This revenue-generating tool has been successfully employed by electric cooperatives since 1989. Today, more than 240 electric cooperatives make use of the round up programs to engage their customers in supporting charitable causes. Customers

response has been extremely favorable. Customer participation rates average 50% nationally, with some rates as high as 90% and 97% in North Carolina. In the eight-state Southeast region, there are 31 co-ops reporting participation rates of 70% or higher.

Through the round up method, a participant's average monthly donation will be about 50 cents. For each 1 million participants, the annual proceeds to charity are \$6,000,000. The total national potential exceeds \$1 Billion per year.³²

³² Information provided by the Utility Customers Charitable Trust, Inc. web site.

The most logical utility to tie a round-up program to is the one with the most direct connection to the resource to be protected. In the case of the Estuary, it would seem that a program tied to water or sewer bills would make the most sense. There are a dozen water suppliers in Delaware. The largest private suppliers are Artesian Water Company serving 71,000 households in New Castle County, United Water Delaware serving an additional 36,000 households in New Castle County, and Tidewater serving 26,000 households in Kent and Sussex Counties. However, with the turn-key program the Palmetto Electric Cooperative offers to cooperatives under their Operation Round Up trademark, working with a local electric cooperative like Delaware Electric Cooperative serving Kent and Sussex counties could streamline some of the program development necessary for PDE to implement a round up program.

Level of Opportunity: Looking at the three largest private suppliers of water in Delaware, and using the national average of 50% participation experienced by electric cooperative customers and the 50 cent average monthly donation (or \$6 a year), a program of this nature could generate \$400,000

annually. Obviously this amount could be increased significantly if the program were expanded to other utilities (sewer, electric, etc.) as well as into the other Estuary states.

Administrative Requirements: In the case of the majority of utility round-up programs, the administrative responsibilities are taken on by the participating utility who collects the donated funds as a part of the billing process already in place and then transfers the funds to the charitable organization involved. PDE's administrative requirements for this opportunity would be tied to establishing the program with a regional utility and then promoting the program appropriately.

Potential Barriers: Many utility customers are becoming increasingly frustrated with the litany of add-on service fees on their billing statements. PDE would have to work closely with the utilities involved to develop an accompanying marketing campaign that would distance the voluntary opportunity from this stigma.

Dissemination Strategy: If PDE were to pursue this opportunity, annual income cycle would best serve the organization as pass through funds.

Featured Case Study: Palmetto Electric Cooperative

Background

The Palmetto Electric Cooperative was established in 1940 and currently provides electricity to approximately 61,000 households in South Carolina's Jasper, Beaufort, and Hampton counties. Palmetto has long been dedicated to improving the quality of life for residents of the state's Lowcountry, not only by providing affordable electric service but also through charitable efforts.

How the Program Operates

A pioneer in the use of billing round up programs for community betterment, Palmetto initiated Operation Round Up in 1989. The program gives customers of the cooperative the opportunity to voluntarily round their bill up to the nearest whole dollar and contribute the additional charge to the Palmetto Electric Trust. These funds are then disbursed to individuals and organizations in need throughout the Lowcountry region at the discretion of an independent Board of Directors made up of community leaders who serve on a voluntary basis. The Board is responsible for the evaluation all grant requests and determines how all Operation Round Up monies will be distributed.

Current Program Status

Operation Round Up has been very successful thus far, having raised \$2 million in its first ten years and \$3.5 million total to date. The average annual donation is \$6 per participant and the participation rate has averaged over 60% over the course of the programs history. Donations through Palmetto are tax deductible and are not used for political purposes. Among the various environmental programs that Palmetto supports are Lights Out for Sea Turtles, Osprey Habitats, Adopt-A-Highway, and Energy Star Transformers. In 2005, Palmetto donated \$35,170 to local organizations, \$21,458 to Bright Ideas Educational Grants, and \$220,452 to individuals in need, for a grand total of \$277,080 in charitable contributions.³³

Implications for PDE

Although Operation Round Up is a licensed trademark of the Palmetto Electric Cooperative, to date the company has helped more than 225 other cooperatives and organizations across the country establish their own round up programs under the trademark. According to the July/August 2006 Cooperative News & Views newsletter, "cooperatives around the United States have used similar programs to raise over \$50 million for their communities." Palmetto's website also outlines the steps that should be taken by other organizations that would like to implement a round up program, stressing the importance of a solid public outreach and advertising campaign.

³³ The statistics contained in this case study came from the company's website: <http://www.palelec.com/community/index.html>

Next steps and recommendations for Voluntary Funding programs:

- **Plan to implement programs as a group**

These opportunities will be most effectively implemented as a suite of programs. This would enable PDE to capitalize on the aggregate income of the collection of programs while minimizing programmatic costs to the organization by providing the opportunity to coordinate internal implementation efforts once rather than repeatedly for each opportunity.

- **Develop a comprehensive public education outreach campaign**

Although in each case a collection method currently exists and the transfer of funds could be done rather simply, the promotion and support these programs will require could present a programmatic hurdle for PDE as an organization. Successfully implementing these types of programs will require aggressive program development that promotes the voluntary donation program, clearly defines the connection to the resource, and firmly establishes PDE as the appropriate organization to administer the funds.

- **Work quickly to implement an E-ZPass program**

At this time, there are no voluntary check-off programs associated with the E-ZPass program in any of the participating jurisdictions. However, as with all other check-off programs, this will change quickly as the first organizations identify it as a funding opportunity. It is critical that PDE act quickly to establish first mover advantage. In addition, it is equally critical that PDE position itself as the exclusive E-ZPass recipient of the funds. This will greatly reduce the dilution effect common to other voluntary programs.

Institutional Financing Opportunities

Though PDE was not created explicitly to serve as a financing organization, the development of many of the financing and funding programs described above would position the organization as a critical financing institution throughout the Estuary. Finance itself is an allocation process of acquiring, managing, and investing fiscal resources, and the process of financing the restoration and protection of the Delaware Estuary will ultimately require myriad institutions, partners, and programs. The goal of any financing effort is to accomplish a goal in the most efficient way possible, thereby increasing return on investment, and PDE has an improved the efficiency

of the financing effort through its grant making activities. The following section identifies opportunities for PDE to expand this critical role in the community, thereby increasing its capacity throughout the watershed.

Financing institutions are essential in the financing process. In effect, the institutions enable the transfer of revenue or financing resources from the source to the program or costs associated with implementation. In the private sector, these institutions develop as a result of market forces or market activity and are driven by the laws of supply and demand. However, in public sector, financing institutions are created to manage the financing process as a result of various compulsory activities or to accomplish a critical community service. The source of the revenue is no different in either scenario – it is the citizens of the community. Furthermore, the function of the institutions is no different – it is to facilitate the allocation of revenue sources. This part of the EFC’s analysis focuses on identifying gaps in the institutional framework related to Delaware Estuary efforts, including suggestions for how the PDE may want to consider expanding their financing role in the region. Examples include leveraging enforcement penalties and leveraging fees in lieu.

Key issues:

- **Long-term programs focusing on restoration and protection**

It is important to point out that several of the following opportunities may not work well as sources for revenue for supporting science and research activities. Successfully implementing these types of programs would require PDE to expend the associated resources on restoration and protection activities. Therefore, they should be considered as long-term funding opportunities for the future.

- **Significant administrative requirements**

Given that these programs focus on restoration and protection activities, successful implementation will require significant administrative capacity on the part of PDE. Multi-jurisdictional implementation will likely increase these capacity needs.

Revenue Opportunity: Enforcement Actions

The Delaware River Estuary and its watershed lands are the home to myriad industries, activities, and land uses that stress the resource. As was mentioned earlier in this report, perhaps no other watershed in this country is subjected to more industrial and population-based stressors than the Delaware River. Additionally, it is a fact that the impact of this level of activity is magnified as a result of a variety of unintended pollution discharge. However, the fact that this unintended

pollution does in fact occur, creates very real revenue and funding opportunity.

Enforcement penalties are collected on both a state and federal basis for a variety of violations that have detrimental impacts on the Estuary. Enforcement actions at both the state and federal level typically take one of two forms, monetary penalties or supplemental environmental projects, and often a combination of the two is involved.

Sidebar: Supplemental Environmental Projects (SEP)

As an alternative to paying the full enforcement penalty levied, some violators choose to conduct an environmentally beneficial project separate from any corrective measures that must be taken place to address the violation. The SEP has a monetary value far greater than the penalty off-set, however is still a very appealing option to many violators because of the positive public relations opportunity the project can create.

USEPA

At the federal level, SEP's are handled by the Environmental Protection Agency (EPA). These are projects that a violator agrees to perform as a part of a settlement agreement. There is no obligation for a violator to participate in an SEP, but cash penalties³⁴ are typically reduced as a result of the project. EPA requires that all SEP's improve, protect, or reduce risk to public or environmental health, and the benefits of the project must have a direct relationship to the violation involved. In addition, the project cannot be one that the violator would be legally required to perform as a part of coming into compliance.

EPA collects project ideas that fit one of eight approved project categories: public health, pollution prevention, pollution reduction, environmental restoration and protection, emergency planning and preparedness, assessments and audits, environmental compliance promotion, and other types of projects. Qualifying projects can be submitted by any interested party and the agency catalogues these in a document titled Project Ideas for Potential Supplemental Environmental Projects. Although project selection is at the violator's discretion, many refer to this list in the decision-making process.

Delaware

In Delaware SEPs are referred to as Environmental Improvement Projects. In the process of settling an administrative enforcement action, DNREC's Secretary has the authority to allow the violator to fund or undertake an environmental improvement project above and beyond the required corrective measures in lieu of a portion of the assessed penalty. The Secretary also has the discretion of assigning a project that either addresses the environmental impacts of the violator's own routine activities or a project within the same geographic region as the violation and within the same media in which the violation occurred (i.e. air, water, etc.)

or a project that contributes in general to the improvement of the state's environment.

DNREC, in collaboration with the Governor's Advisory Council on Environmental Control, has developed an Environmental Improvement Project Bank. Violators given the option of completing an environmental improvement project outside of their own activities select from the projects in this Bank. These projects have been submitted by private as well as by public nonprofit organizations and must have single project costs that do not exceed \$100,000. Eligible submissions must meet certain criteria: they must be fully implementable, be prepared to start immediately and have a clear end date, and must be well tied to the priorities stated in DNREC's Strategic Plan. In addition, these projects must be innovative or demonstrative, leverage a public-private-partnership, or provide a hand-on learning opportunity for students or the general public.

Pennsylvania

In Pennsylvania, the Department of Environmental Protection allows violators to perform Community Environmental Projects (CEP) in lieu of a portion of the enforcement penalty assessed. These projects must offer significant public health, safety or environmental benefits for the local community or general public. Although the state does not suggest or require these projects be a part of an enforcement settlement, it will identify appropriate potential projects to violators that express an interest in conducting one.

New Jersey

In New Jersey, the Department of Environmental Protection's Office of Natural Resource Restoration (NJDEP) has oversight of natural resource damage (NRD) settlements. These settlements are designed to compensate New Jersey residents for the injury or lost use of the state's natural resources due to contamination and are agreed to in addition to any costs associated with clean up of the contamination. All cash penalties are deposited in case specific accounts in the Hazardous Discharge Site Remediation Fund, held separately from the state's General Treasury Fund, and are managed by NJDEP.

Compensatory projects are carried out based on the regulatory guidelines set forth in the state's Technical Requirements for Site Remediation.

NJDEP has stated a preference for settlements that include restoration and resource protection efforts in place of cash penalties. In fact, in the last three years the state has negotiated more than twice the NRD compensation from violators than it had for the previous ten years, including the protection of more than 2,200 acres of land.

In any case, at the state or federal level, a well developed catalogue of potential supplemental environmental projects as well as a strong relationship with the regulatory agencies involved could enable PDE to direct a portion of these projects towards their own goals for the Estuary. Furthermore, PDE could position itself to be the beneficiary of state or federal cash penalties, and could use the funds to support science and restoration activities in the Estuary.

³⁴ Cash penalties are typically shared by the parties who brought suit, and in the case of the federal government, these funds go back into the U.S. Treasury.

Featured Case Study: The Hudson River Foundation

Background

The Hudson River Foundation for Science and Environmental Research, Inc., generally referred to as the Hudson River Foundation, or HRF, has a history and a set of programs and activities that may be of interest to the Partnership for the Delaware Estuary as it examines its future.

How the Program Operates

HRF was established in 1981 by the State of New York as a non-profit corporation with its own Board of Directors, under terms of an agreement among environmental groups, government regulatory agencies and utility companies concerning the impacts of electric power generating facilities along the Hudson River. One particular set of issues dealt with recovery of costs from the successful battle to prevent construction of a pumped storage hydroelectric facility on Storm King Mountain, one of the landmark environmental lawsuits of the era.

The Hudson River Fund was established in 1982 with an endowment to HRF of \$12 million to sponsor independent scientific research and education programs to build sound public policy for future management of the River and its watershed. The Fund is managed by a group of investors overseen by the Board. It has tripled in value to about \$36 million since its establishment, and has provided over this same period 662 grants at a value of nearly \$32 million. Most grants are for research focused on the Hudson, although there is also support for graduate and other fellowships and educational programs.

In 1985, an additional agreement with the State of New York created the Hudson River Improvement Program as part of HRF, with an initial endowment of \$1.5 million. The mission of the Improvement Fund is to support public enjoyment and use of the River, with special focus on capital construction, development or physical improvements. Of special note is that the purpose includes enhancing scenic and cultural as well as natural resources. Since inception, this fund has increased in value to \$2.7 million while awarding 520 grants totaling \$4.8 million. Many of these funds have gone to improve public access to the River and to upgrade and expand local parks and recreation facilities.

A further augmentation of the HRF portfolio occurred in 1994 with the establishment of the New York City Environmental Fund, as a result of a \$5 million payment by the Consolidated Edison Company, the local electric utility, under terms of an agreement resolving natural resource damage claims by the New York State Department of Environmental Conservation. The purpose is to support the "restoration, care, public enjoyment of, and education about New York City's natural resources." Most grants are small amounts to educational and neighborhood groups, so that in twelve years 574 awards totaling \$8 million have been made by HRF. The remaining value in the Fund is nearly \$3 million.

Finally, as a result of a settlement in 2002 related to the visual and other impacts of power plants along the Upper Hudson, \$1 million was paid to the HRF to establish the Catskill-Olana Mitigation Fund. The Fund is to support local projects to improve vistas and provide public facilities in communities along the River affected by the utility construction. A major concern was the intrusion of one power plant into the historic views from the 19th century painter Frederick Church's estate, Olana. A number of grants have been made and the current value of the Fund is over \$2 million.

Current Program Status

Summing these results, the endowment of the Hudson River Foundation now stands at \$43 million, after having made nearly 1800 grants worth over \$45 million. However, it is important to note that different spending philosophies underlie each of the separate programs. The Hudson River Fund remains the basic endowment, and is managed to assure a sound long-term financial condition for HRF. The Improvement Fund is intended to have long-term stability, as well, in order to assure a steady source of project funds. The New York City Environmental Fund is managed to provide payout for a number of years, then phase out. And the Olana Fund is intended to be spent in the next two years or so. These different management strategies are designed to meet the original intent of the agreements setting up the Funds, and are within the discretion of the Board of Directors of HRF.

In addition to the grant programs to support science, fellowships, education and improvement projects along the River, the HRF has developed an important internal program to bring scientific understanding to bear on public policy. Much of this effort is tied to two estuary management programs, the Harbor Estuary Program (a partnership of the Federal government and the States of New York and New Jersey), and the Hudson River Estuary Program, a New York state program focused on the tidal river between the Harbor and Albany. In addition, there is a close working relationship with the U.S. Army Corps of Engineers Hudson-Raritan Estuary Study. For example, HRF staff led in the development of effective measures of contamination in the waters and sediments of the Harbor. And with the support of contractors from Cornell and elsewhere, they are currently leading the effort to develop a science-based conservation restoration plan for the Estuary, with funding from the Corps.³⁵

³⁵ Drafted by Bill Matuszeski based on his personal knowledge and experiences as a member of the Hudson River Foundation's Board of Directors.

Revenue Opportunity: Migration and Conservation Banking Programs

A mitigation bank is a wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources. A mitigation bank may be created when a government agency, corporation, nonprofit organization, or other entity undertakes these activities under a formal agreement with a regulatory agency. These types of programs could provide PDE with an opportunity to initiate and support large-scale conservation and restoration efforts.

Mitigation banking provides several opportunities for PDE. First, as state officials become more aggressive in enforcing water quality requirements such as TMDLs and MS4 storm-water programs, the possibility exists that new development will require offset programs to mitigate water quality impacts. Essentially, developers and landowners may at some point be required to pay fees in lieu of protecting water quality on site. A significant concern related to these types of programs includes the administrative capacity to collect the fees and direct them to on the ground projects. An institution like PDE could fill that role on behalf of the Estuary states.

Revenue Opportunity: Restoration Up-Front

This concept, although still in the developmental stages, is under consideration as a collaborative effort at several major U.S. corporations as well as at a number of wildlife agencies at the state and federal level. Restoration Up Front would provide corporations the opportunity to conduct habitat protection and restoration activities now to receive credits (determined by a trustee agreed upon valuation system) to compensate for future natural resource damage liabilities. This is not in any way “permission to pollute,” in the event of environmental damage, a violator would still be required to take corrective action for the damage. In cases where Supplemental Environmental Projects are offered as a method of reducing a punitive fine, however, Restoration Up Front credits could be used as a part of the settlement.

This type of program provides a number of benefits. First, basic economics dictates that taking action now will be less expensive than taking action later. Additionally, the established

valuation system will further reduce restoration costs by making settlement negotiations more efficient. Also, this system allows restoration to be conducted at more meaningful, watershed or landscape scales, as opposed to the often piecemeal efforts of traditional restoration programs. Furthermore, if the system operates under a credit banking model, a market is created for the trade, sale, or purchase of excess credits by the variety of stakeholders involved.

PDE’s involvement in Restoration Up Front would, at the very least, provide the organization the opportunity to direct these restoration dollars to projects that best meet Estuary priorities. In a more ambitious scenario, PDE could sign on to act as the regional bank for these credits, thereby expanding its role in the Estuary region.

Revenue Analysis of Institutional Opportunities

Level of Opportunity: the level of opportunity for these programs is potentially very significant. Enforcement actions in particular can result in SEPs and fines in the tens of millions of dollars. In addition, the programs have the potential to be very long-term in nature.

Administrative Requirements: Because of the institutional nature of these programs, the administrative requirements could be very significant. However, as with the fee based programs, much will depend on how the programs are developed and implemented. If, for example, an SEP were developed on the Hudson River Foundation model, PDE would need to develop the capacity to disseminate funding like a foundation. This would require administrative capabilities very different than what exists at the organization at this time. If, however, PDE were to implement a banking or restoration upfront program, it would require a detailed understanding of local implementation strategies and on the ground project management.

Potential Barriers: There are a number of barriers that would need to be overcome before these programs could be successfully implemented.

Organizational competition: If there is potential revenue involved, there will be competition from other organizations and institutions. These types of opportunities are no exception. In many respects, the competition could be even more significant considering the fact that many

communities and institutions have targeted SEPs as a potential funding source for important community projects.

Capacity: In addition to administrative capacity issues, PDE will confront resource capacity issues related to developing these projects. All of these potential opportunities will require significant investment on the part of PDE to successfully implement. This will require a commitment of existing resources for many months, if not years to come.

Dissemination Strategy: It is possible that some of these institutional opportunities could be distributed as an annual pass-through type program. For example, mitigation banking and restoration upfront programs could be developed in a way that guarantees sustained annual revenue flows. However, it is more likely that these revenue flows will be sporadic and unpredictable. Therefore, endowment programs and time release funding would most likely be more appropriate.

Featured Case Study: Elizabeth River Restoration Trust

Background

The Elizabeth River, which flows through the Tidewater and Hampton Roads area or southeastern Virginia, is a major tributary to the Chesapeake Bay. Although not a true river, but rather a tidal estuary, it provides critical access to the military and commercial ports of Portsmouth and Norfolk. Being one of the most industrialized waterways on the East Coast has had significantly damaging effects on the quality of the water and habitat in the Elizabeth River's Estuary.

The Elizabeth River Project, a 501(c) 3 nonprofit incorporated in 1993, focuses on developing corporate, community, and government partnerships that aid the restoration of the Estuary through pollution prevent and reduction as well as habitat creation. In July of 2003, the organization entered into a Memorandum of Understanding (MOU) with Virginia's Department of Environmental Quality (DEQ) and the U.S. Army Corps of Engineers, Norfolk District (Corps) to implement a new in-lieu-of fee program to be known as the Elizabeth River Restoration Trust (ERRT).

How the Program Operates

The ERRT is set up to accept mitigation payments as an offset for Corps or DEQ permitted projects that have made every effort to prevent and minimize harm to the Elizabeth and its habitats (particularly tidal submerged lands and tidal wetlands), but still have certain unavoidable environmental impacts. This fee would be paid "in-lieu-of" conducting an on the ground mitigation project.

ERRT monies are expended on aquatic resource enhancement, restoration and preservation projects in the Estuary. The Elizabeth River Project's Watershed Action Plan: Elizabeth River Restoration and Conservation serves as the guiding document in establishing conservation priorities and selecting appropriate projects. DEQ and the Corps are represented on the Trust Advisory Board which has an advisory role in the project selection process. Funds are spent out in a time-release distribution method with the expectation that funds will be disbursed within three years of being received. The Trust itself receives a five percent administrative fee from all funds received.

Current Program Status

The first funds were received in June of 2004 as a result of the construction of a private port facility in the mainstem of the Elizabeth. Two payouts, one of \$5 million for dredging activities associated with the project on 189 acres of river bottom and one for \$310,500 for just over 2 acres of filling activities, were made to the ERRT. By October of 2005, remediation projects totaling \$590,000 had been conducted, \$15,000 of which came from earned interest. ERRT operates on a fiscal year of October 1 through September 30, therefore data for the current fiscal year is not yet available.³⁶

Implications for PDE

A major consideration for PDE in deciding to establish a program of this nature is a newly proposed mitigation rule that would, after a five year transitional period, require that all in-lieu-of programs that function as compensatory for permits issued by the Corps meet the same standards as mitigation banks.³⁷ If PDE were to seek to implement an in-lieu-of partnership, this issue could be addressed in the language of the initial MOU. Also, the proposed legislation would not affect mitigation agreements at the state-level.

³⁶ Works cited include: *Memorandum of Understanding between the Elizabeth River Project, the Commonwealth of Virginia, and the U.S. Army Corps of Engineers, Norfolk District* (July, 2003); the *Elizabeth River Restoration Trust Operating Agreement* (May, 2004); and the *Elizabeth River Restoration Trust Annual Report of Activity* (October, 2005). All three documents are available in their entirety from the Environmental Finance Center, University of Maryland.

³⁷ Federal Register, Vol. 71, No. 59; March 28, 2006.

Final Recommendations

- **Facilitate the development of a regional financing strategy**

The EFC project team focused exclusively on the Partnership for the Delaware Estuary and its program and revenue goals. However, from a broader point of view, the ultimate goal is to increase the resources directed towards protection and restoration of the Estuary itself. Many of the programs and revenue opportunities identified and analyzed as part of this project may be usable by a range of organizations in the watershed. In effect, these opportunities provide the structure for a regional financing strategy.

PDE and its leadership should work in partnership with the myriad institutions, organizations, and agencies seeking to protect the Estuary and its watershed lands. As its name would suggest, no institution is more effectively positioned to bring about this partnership. The development and implementation of fee-based programs focusing on shipping, vehicular transportation, and water extraction and discharge industries can have far reaching impacts on the broader regional financing effort. PDE must make it clear that its desire to leverage these revenue sources is directly linked to its mission to work with others to protect and restore the resource.

- **Develop a financing task force**

The EFC project team recommends that PDE aggressively pursue several of the fee-based programs targeting both transportation and water resources sectors. In order to do this, we also recommend that PDE establish a financing task force charged with developing and implementing a political strategy for making these financing initiatives a reality. The task force should be comprised of political and industry leaders from multiple institutions, companies, and jurisdictions.

This type of task force would serve multiple purposes. First, it would provide the high level expertise necessary for developing and implementing politically charged and

complex financing schemes. Second, it would provide a forum for engaging industry and stakeholder groups at the highest levels, thereby creating an atmosphere of inclusion and cooperation. Finally, it would provide PDE with the capacity it needs to serve as a leader in the development and implementation of a regional financing effort.

- **Develop a multi-regional approach**

One set of opportunities for PDE and the broader financing effort relates to the shipping industry. As is discussed in other sections of this report, the shipping industry is both a significant economic driver in the region, as well as a significant environmental threat to the Estuary. Given industry concerns over the impact of additional fees related on decisions to use the ports, a multi-regional approach may be necessary and potentially very effective. By working with leaders in other regions – specifically the Chesapeake Bay watershed and New York Harbor – concerns about pushing industries into other locations could be avoided. Specifically, if fees on shipping are implemented across regions, the threat to move business to other locations could be alleviated.

Conclusion

Successfully implementing the revenue opportunities the EFC investigated will require that PDE focus initially on the opportunities that offer the greatest return on investment. At the same time, PDE will want to work to raise the organization's profile not only with the general public but even more so with legislators, state-level decision-makers, and industries operating within the Estuary to better position the organization to put some of the longer-range opportunities in place.

The EFC believes developing a \$1 million fund for science and research is within reach for the Partnership for the Delaware Estuary. In fact, if a number of the fee-based opportunities were successfully pursued, revenues could be significantly greater than the \$1 million target and the organization would be wise to have in place a long-term strategy that address this potential expansion in scope and budget.

The EFC Project Team

Dan Nees, Director, Environmental Finance Center

Mr. Nees has been with the Environmental Finance Center for five years, and assumed the role of Director in January 2005. Over the past seven years he has worked with communities throughout the Chesapeake Bay watershed in their efforts to implement and finance environmental and sustainable development initiatives. His work has focused on developing and building coalitions of diverse interests groups and directing them towards common financing and implementation goals. Additional experience includes serving as Project Manager of Corporate Programs at The Nature Conservancy and Manager of Alternative Marketing at U.S. News and World Report. Mr. Nees holds a B.A. in Economics, a Master of Environmental Policy, and a Master of Business Administration, all from the University of Maryland, College Park.

Jennifer Cotting, Program Manager, Environmental Finance Center

Ms. Cotting joined the Environmental Finance Center at the University of Maryland (EFC) in 2004 to manage an EPA funded program designed to help communities in Region 3 overcome barriers to implementing and financing their watershed protection efforts. She now coordinates the EFC's natural resource programs as well as other activities. Prior to joining EFC, Ms. Cotting worked as an independent consultant developing and implementing environmentally based education and outreach programs for nonprofit organizations and government agencies. She received her M.S. in Sustainable Development and Conservation Biology from the University of Maryland and her B.A. in Communications from Marymount University. Ms. Cotting is also co-editor of Urban Wildlife News, the biannual newsletter of the Urban Wildlife Working Group of The Wildlife Society.

Bill Matuszeski, Independent Consultant

Mr. Matuszeski is the former Director of the Chesapeake Bay Program from November, 1991 until April, 2001. The Chesapeake Bay Program is the premier watershed restoration effort in the United States, and is recognized world-wide for its clear goals, measurable achievements, comprehensive approach to

such complex problems as air pollution deposition and land use change, and use of computer models to test management options. In recognition of his role in these achievements, Mr. Matuszeski was the 2001 recipient of the Environmental Protection Agency's highest honor for distinguished service, the Lee Thomas Award. Since retiring in 2001, he has served as a consultant to regional efforts to manage, preserve and restore watersheds, including the Hudson River Valley, New York Harbor, Long Island Sound, Narragansett Bay, and the Sea of Cortez in Mexico. He recently co-authored a report of the Chesapeake Bay Commission on the most cost-effective measures to restore the Bay, and worked with the United Nations on standards for coastal reconstruction after the Asian tsunami. Mr. Matuszeski received his undergraduate degree in government from the University of Wisconsin and his law degree from Harvard with a specialization in land law. After law school, he served for two years in the Peace Corps in Venezuela, working on urban development problems for the city government in Valencia.

Michael Curley, Executive Director, International Center for Environmental Finance

Mr. Curley is the founder and executive director of the International Center for Environmental Finance, which is funded with a \$3 million grant from the U.S. Environmental Protection Agency (USEPA). For several years, he also served as the senior financial advisor to the Office of International Affairs at USEPA. Mr. Curley's work has focused on the former Soviet Union, Central America and Asia to develop financial mechanisms for funding infrastructure projects. Throughout his work, he advised many governments and international organizations on finance in over 25 countries across the globe, including the World Bank, and the North Atlantic Treaty Organization (NATO). He also served as a Senior Lecturer at the Johns Hopkins University on International Project Finance and also as an Adjunct Professor of Banking and Finance at New York University where he taught Venture Capital as well as Capital Markets & Investment Banking. Mr. Curley holds a Juris Doctor from the University at Buffalo Law School in Buffalo, NY and a Bachelor's degree from Georgetown University in Washington, DC.