





Scaling Up Ecosystem Restoration Efforts to Improve Water Quality in the Chesapeake Bay

Maryland's CWSRF Nonpoint Source Pilot



Maryland's Powerful Strategy to Address Nonpoint Source Pollution in the Chesapeake Bay

The Chesapeake Bay is the largest estuary in the United States, with an expansive watershed of 64,000 square miles reaching across six states. As one of the most productive bodies of water in the world, essential habitat for fish and wildlife, and a recreational playground for millions of people, the Chesapeake Bay is a natural resource of great economic and environmental value. But the health of the Bay is under constant threat from water pollution. Phosphorus, nitrogen, and other contaminants are carried into the bay by stormwater runoff from a watershed comprised of a patchwork of cities, suburban and rural neighborhoods, farms, and transportation corridors. As a signatory to the Chesapeake Bay Agreement, the Maryland Department of the Environment (MDE) engaged in this EPA-sponsored pilot project to help their state Clean Water State Revolving Fund (CWSRF) program pivot in new directions and expand the implementation of scalable, innovative nonpoint source projects that support the health of this critical estuary.

Financing reforestation projects can effectively reduce pollutant runoff, support healthy soils, sequester carbon dioxide, and potentially earn stormwater credits needed for permit compliance in certain jurisdictions within Maryland. This approach is a core strategy in the State of Maryland's <u>Watershed Implementation Plan</u> to reduce pollution in the Chesapeake Bay by 2025. MDE's Water Quality Infrastructure Financing Administration, which administers Maryland's Clean Water SRF program, in consultation with the Maryland Water and Science Administration's Watershed Protection, Restoration and Planning Program, were inspired by the success of the Frederick County <u>Creek ReLeaf Program</u>. They saw the potential to scale up a collaborative statewide ecosystem restoration effort and leverage the financial might of Maryland's CWSRF program to further advance the implementation of projects that address nonpoint source pollution.



The Ecosystem Restoration Pilot

MDE has a strong program to address point source pollution. The goal of the EPA pilot project was to create a viable pathway for using the CWSRF program to encourage reductions in nonpoint source pollutant loadings to help meet the <u>Chesapeake Bay Total Maximum Daily Load</u> (TMDL). Specifically, Maryland sought to use its CWSRF program to encourage reforestation on privately held lands (which represents most of the ownership in the state) and to help local governments, counties, and their partners finance their forestry efforts and earn restoration credits for stormwater permits. MDE used the pilot to develop a framework for financing and quantifying the co-benefits of reforestation. The pilot sought to broaden eligible practices that encourage the funding of nonpoint source projects that align with the goals of the Maryland Department of Natural Resources (DNR) Chesapeake and Atlantic Coastal Bays Trust Fund, the 2014 Chesapeake Bay Agreement, and the <u>TMDL Phase III</u> Watershed Implementation Plan (WIP) 2025 targets and outcomes for EPA. These efforts will be capitalized in part by the Maryland CWSRF program to complement existing DNR efforts that provide funding for reforestation practices to reduce nonpoint source pollutant loads in the Chesapeake Bay watershed.

Communicating Benefits

As part of this pilot, MDE also explored innovative approaches to messaging and marketing the benefits of reforestation projects. The Department wants to incentivize participation, turning concepts and ideas into actual projects. Compliance with stormwater permit requirements and meeting the TMDL targets to achieve the restoration goals of the <u>Maryland Phase III Watershed</u> <u>Implementation Plan</u> are top priorities for municipal and county government leaders and stakeholders alike. Thus, finding a way to quantify the environmental outcomes and showcase reforestation as a cost-effective way to achieve these goals is critical for MDE. They want to use the assistance provided by the pilot to develop effective tools designed to assist communities and stakeholders in assessing the potential costs and benefits of reforestation projects, and highlight available financing options.

Hello MD FFIT!

MDE developed the <u>Forest Financing Implementation Tool (MD FFIT</u>) as a project planning tool that shows how reforestation and native grass planting can be a cost-effective way to reduce nonpoint source pollutant loads in the Chesapeake Bay watershed and restore watershed health in rural and urban environments alike. The calculations are based on the conversion of existing land uses such as crop, pasture, or turf to forest buffer as selected by the user. MD FFIT enables project implementers to anticipate costs, consider financing needs and options, estimate pollution prevention and stormwater credit earning potential, and measure project cost savings. The tool helps community leaders, drinking water and wastewater utilities, watershed groups, and other stakeholders evaluate and document the benefits of investing in ecosystem restoration projects, so they can communicate those benefits more effectively to key decision makers in their communities and take appropriate action.

The tool has two sections that help project implementers answer two different questions, depending on how much information they have about a proposed project. The first section, called Discover MD FFIT, answers the question: *"How many acres can I restore if I have a fixed budget?"* This section is intended for users that don't have a lot of information about the project they are considering and are interested in basic information about the benefits that might be realized with a specific budget. The scenario is based on default assumptions about project parameters, and provides valuable information about project acreage, credits, and estimated loan repayments for a project of a given size. Figure 1 provides an example of some of the input and outputs of this section of the tool.

Discover MD FFIT		You can afford to restore
How much do you plan on investing in the project?	\$1,700,000	226 acres You could earn 339 stormwater credits Annual payments on your loan could be as low as \$55,367
Are you planning to receive any grant funding? Enter amount here.	\$250,000	
What interest rate do you expect to pay on a loan?	0.90%	
How quickly do you plan to repay the loan (in years)?	30	

Figure 1

The second section, called Project Planning, addresses the question *"What size of a loan/grant mix do I need to get in order to restore a fixed number of acres?"* This scenario is entirely "user defined" and is intended for users that have more detailed information about the project they are trying to implement. The user enters line-item information to calculate a total project cost and determine the environmental benefits to be gained by implementing the project. It also provides information on the money that could be saved by financing the loan through the CWSRF versus using a bank or the municipal bond market.

The Project Planning section of MD FFIT helps a project implementer calculate the costs of working with contractors and labor services, decide which elements of a project to retain versus outsource, and estimate how competitive a loan proposal to MDE or a grant provider might be, based on nutrient reductions and efficiencies. Calculations can be done in a matter of minutes with benefits and costs laid out immediately.

Based on user-defined inputs, the Project Benefits section of the tool automatically generates a summary of the co-benefits that may be realized by undertaking reforestation projects, such as the annual reduction in total nitrogen, total phosphorus, and total suspended solids, and the number of carbon credits earned. Figure 2 shows the anticipated environmental benefits for a 226-acre project in a riparian zone.



Local jurisdictions often compare and select best management practices to achieve their TMDL targets based on the cost per acre of their different options. The Measuring Cost Efficiencies section of MD FFIT conveniently lays out the implementation cost per acre for a proposed project, the annual cost per pound per acre of pollution reduction, and cost per Equivalent Impervious Acre and per MS4 credit earned, annualized over the expected life of the forest restoration asset (typically 30 years), as shown in Figure 3 below.

By running the numbers for a prospective project through MD FFIT, project implementers can quickly estimate these critical metrics, generate reports, and share with key partners, stakeholders, and financial assistance organizations.



Creative CWSRF Loan Structuring Options

The DNR Trust Fund currently provides between <u>\$5 and \$6 million annually</u> towards reforestation and related efforts on public lands in the Chesapeake Bay and Coastal Bay watersheds. MDE sought to leverage the flexibility and low interest rates of the CWSRF to further expand these efforts by exploring several creative funding options and co-funding opportunities for funding these types of nonpoint source projects. With most of the land available for reforestation being privately held, the success of implementing MD FFIT will depend on the creation of effective public-private partnerships.

Fortunately, the state statutes that govern Maryland's CWSRF program allow for the program to provide financing to private entities and nonprofit organizations so long as they have a dedicated source of repayment and can provide adequate security for the loan.

The CWSRF Guarantee

A guarantee is an innovative, yet rarely utilized, financing mechanism whereby the state CWSRF program uses its authority to provide assurance for a bond or other financial agreement for another entity. This may be a public entity, such as a municipality, or a private entity such as a non-profit organization. In the event of a default, the CWSRF would meet the terms of the entity's bond. Due to the guarantee, the entity's bond will adopt the credit rating of the CWSRF program. Because CWSRF programs typically enjoy AAA credit ratings, the guarantee can be a powerful tool in lowering the interest rate of the entity receiving it. The guaranteed bond is secured by the entity's own repayment mechanism, with the CWSRF's cash flows as an underlying security. If the entity defaults on its debt, the CWSRF would be required to step in and cover the debt service on the bond, per the guarantee agreement.

Title VI of the Federal Water Pollution Control

Act Sections 603(d)(3) and 603(d)(5) allow state CWSRF programs to use guarantees on bond issuances made by public and private entities. However, in Maryland this was previously limited

Why use a CWSRF Guarantee?

- A guarantee can provide a lower interest rate by offering the SRF's high credit rating.
- The guarantee can be a benefit to the entity receiving the guarantee if they are a new entrant to the bond market.
- The strength of the CWSRF's cash flows and bond market presence can help reduce borrowing costs to the guarantee recipient.
- A guarantee can be a useful tool for an SRF that is funds-limited and does not have sufficient cash to finance a direct loan.
- The CWSRF would not be on the hook for any cash outlays, unless there is a default on the bond.

to projects addressing wastewater facilities. As a result of this pilot, Maryland amended its <u>state statutes</u> to expand its CWSRF guarantee authority as a means of financing various water quality projects. This statutory revision now extends the guarantee to any public, private, or non-profit entity utilizing green bonds or environmental impact bonds to pay for projects resulting in a water quality benefit. Using this approach, MDE has approved the first ever loan guarantee to leverage carbon markets and private finance to fund ecosystem restoration projects that improve water quality and offer climate change solutions through healthy forests using the CWSRF program, as shown in Figure 4 below. This guarantee made to the <u>Family Forest Impact Foundation</u> for \$2.5 million sets a national precedent for CWSRF programs across the country.

Figure 4



The Family Forest Impact Foundation seeks to enroll over 500,000 acres across the Central Appalachian region into the Family Forest Carbon Program. The Foundation plans to issue a series of green bonds each year beginning with \$10 million in 2023 and subsequent issuances of \$8 million annually until 2027. To provide incentives for the 135 participating landowners in Maryland, the Family Forest Impact Foundation plans to allocate 25% of the bond proceeds to Forest Carbon Program efforts in Maryland using a CWSRF Guarantee from MDE's Water Quality Financing Administration.

Thinking Outside the Box

MDE and DNR continue to explore other creative financing mechanisms that take advantage of the flexibility that Maryland's CWSRF program offers. This may include what is called an "afterpay" loan structure which can leverage the grant funding made available by the DNR Trust Fund to help make ecosystem restoration projects more affordable and offer a financial incentive to a community partner (Figures 5, 6). In this structure, the CWSRF provides bridge financing to implement the project, with the DNR Trust Fund then reimbursing the implementer (landowner) for most of the project costs at completion. This reduces the financial risk to the landowner and accelerates the implementation of projects.

Another option that MDE and DNR may consider is to create a cooperative lending structure that uses conduit lending, such as pass-through loans or a linked deposit mechanism, to reach ecosystem restoration and reforestation projects on privately owned land. By passing funds to DNR with this mechanism, the DNR Trust Fund would be able to offer a 50-50 grant/loan mix, allowing it to restore twice the amount of project area at a significant discount (Figure 7).

Figure 5



- MDE provides a loan for the project, which is bought out by the DNR Trust Fund upon completion.
- MDE provides a loan to the project implementer that is disbursed over 3 years.
- Year 1 includes planning, design, site preparation, and planting installation.
- Years 2 and 3 are the assessment period.
- The loan repayment term is 3 years.
- The implementer pays annual principal and interest (P&I) based on the principal outstanding.
- The MD DNR reimburses the implementer 75 percent of the implementer's principal and 100 percent of the interest payment annually. The remaining principal is paid out in Year 4, after the project has been completed and certified.



Pairing \$13 Million in low-cost CWSRF financing with \$13 million in Trust Fund grants could restore approximately 1,500 acres of riparian buffers and forestland

49% Project implementer's savings

compared to financing the project with the CWSRF alone*

Investment MDE/DNR Cooperative Savings

Total MDE/DNR

50%

1,500 Restored Acres

Results in significant reduction in pollutant loads to the Chesapeake and Atlantic Coastal Bays



*assumes a 0.9% interest rate as of 11/2020;

**depends upon tree maturity

Sources: Frederick Creek ReLeaf Staff Maryland Forest Financing Implementation Tool (MD FFIT)

CONDUIT LENDING ROLES & RESPONSIBILITIES



- Submit CWSRF loan application
- Ensure repayment of CWSRF
 loan
- Determine funding levels for various Community Implementation Partners based on need
- Pass any principal forgiveness on to Property Owners

Approved Forestry Contractors

- Help market the program
- Provide recommendations to Property Owners regarding plantings
- Pre-planting land preparation, tree planting, post-planting assessment activities for 3-5 years

Maryland CWSRF

- Recruit Community
 Implementation Partners
- Enforce CWSRF program requirements
- Develop financial assistance
- agreements, legal instruments
 Process disbursements and
- repayments
 Annual oversight of reforestation funding activity

The Family Forest Impact Foundation (Community Implementation Partner)

- Determine demand for reforestation in service areas
- Determine organization's internal capacity to expand service to this need
- Market the program using existing networks
- Assume risk of the loan
- Establish underwriting criteria and lending terms
- Oversee administration and performance of project
- Oversee project design with Forestry Contractors and Property Owners
- Select and manage Forestry Contractors
- Project reporting

Property Owners

- Submit application to Community Implementation Partner
- Provide access to property from pre-planting to postplanting assessment
- Obtain local permits or project approvals, if necessary
- Authorize disbursements
- Repay loan to Community
 Partner

Public Outreach and Engagement

Once the MD FFIT tool and guidance was complete, MDE launched an active and ongoing promotional campaign to introduce local governments and non-governmental organizations to the tool, starting with developing a <u>YouTube training video</u> that provides an overview of the tool and interactive demonstrations running different project scenarios. The link to the training video, as well as a marketing brochure (Fig. 8), are posted on the MDE website. MDE has given presentations on MD FFIT to numerous local governments and watershed groups, and there is continued interest from stakeholders on the tool.

MDE has also discussed with the Office of Secretary of the Environment and the Air and Radiation Administration how MD FFIT might help to implement the <u>Tree Solutions Now Act</u>, which was passed in 2021 and subsequently created the <u>Maryland Carbon Markets and Trees Commission</u>. MDE leads the commission and is using MD FFIT to support the Five Million Trees for Maryland initiative with support from DNR, the Maryland Department of Agriculture, and the Chesapeake Bay Trust. Together they are coordinating the tracking and implementation of this tree planting goal.



Figure 8



MDE has succeeded in creating an engagement strategy capable of reaching the underserved urban communities, agricultural landowners, public and private stakeholders needed to realize environmental goals in the Chesapeake Bay using tools like MD FFIT. This outreach campaign has resulted in a new partnership with the Alliance for the Chesapeake Bay and DNR Forest Service on a \$125,000 Landscape Scale Restoration Grant from USDA that will use MD FFIT to work with local communities from 2022-2025. Other notable marketing and outreach with key partners include:















The Power of Collaboration

The success of establishing innovative financing mechanisms and implementing the MD FFIT tool to quantify the benefits of ecosystem restoration projects required a strategic approach to watershed finance partnership development. This meant developing a deep bench of resources and experiences from various stakeholder groups across the public and private sectors. Many of the partners in the pilot engage with a broad cross-section of stakeholders, particularly the DNR Trust Fund programs that actively support numerous reforestation efforts across Maryland such as <u>The Maryland Forest</u>. Foundation, <u>Tree Baltimore</u>, <u>Tree-Mendous Maryland</u>, and <u>Trout Unlimited</u>. In fact, the DNR Trust Fund already works with more than 30 nurseries and landscape service providers across the state, which makes them an effective partner for the implementation of reforestation projects on a statewide scale and well-positioned to help the program achieve further growth and expansion in the future.

The partnership between MDE and the DNR Trust Fund is proving to be critical for further advancing the goals of Maryland's Phase III WIP for the Chesapeake Bay. The Maryland CWSRF program has the robust financial resources necessary to support broad implementation of nonpoint source project initiatives like reforestation undertaken by other state agency partners. MDE and DNR continue to explore options and work toward the best plan for implementing an optimal co-funding arrangement. Through their partnership, ecosystem restoration efforts and outcomes are poised to grow significantly.

By working together, MDE and DNR are making important improvements to the Chesapeake Bay and its surrounding habitat using ecosystem restoration in both urban and rural environments and influencing groundbreaking new state legislative policy. On July 1, 2022, a new <u>Conservation</u> <u>Finance Act</u> went into effect in Maryland. This landmark piece of legislation establishes new state policy priorities that support the integrity of healthy watersheds, including the conservation and reforestation of forests, and makes ecosystem restoration projects eligible for the same forms of financial assistance as other wastewater and drinking water infrastructure projects. This bill galvanizes the partnership between the CWSRF program, MDE, DNR, and local communities which will benefit from greater access to innovative and flexible financing options.