



NFWF



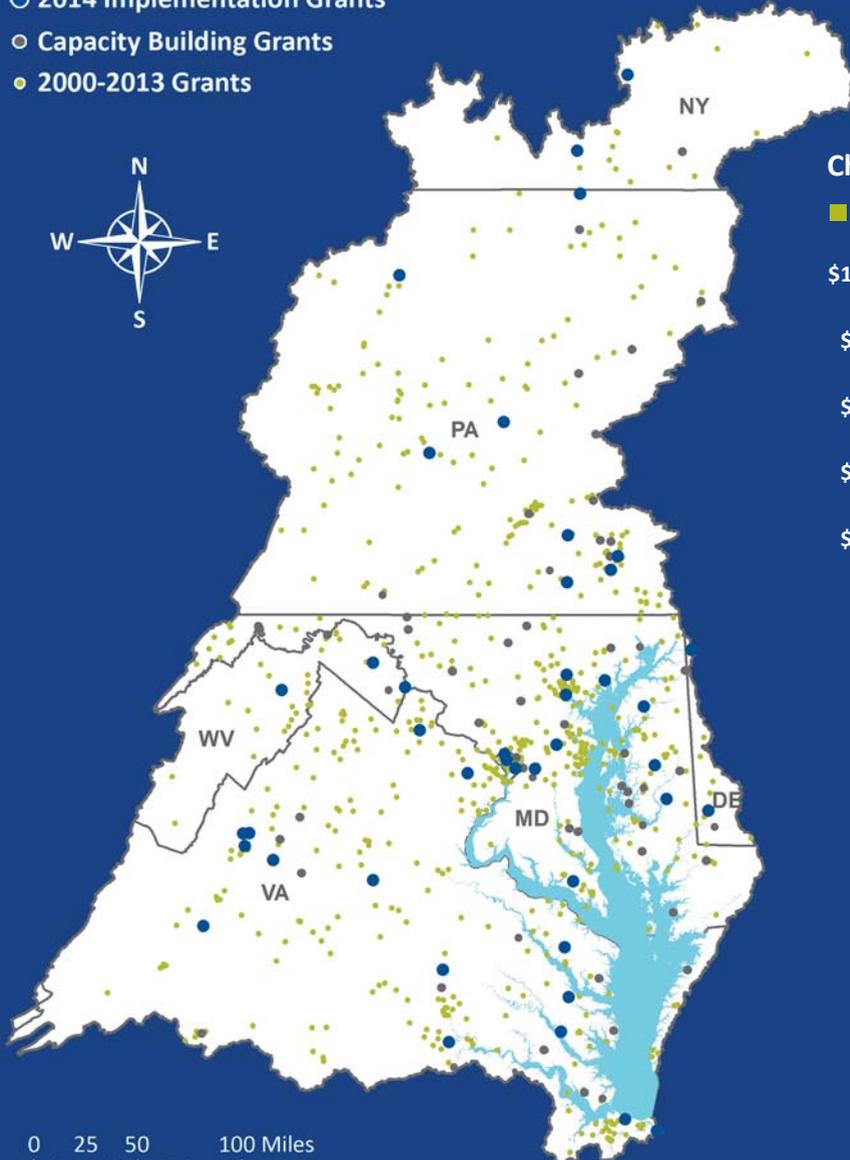
Chesapeake Bay Stewardship Fund



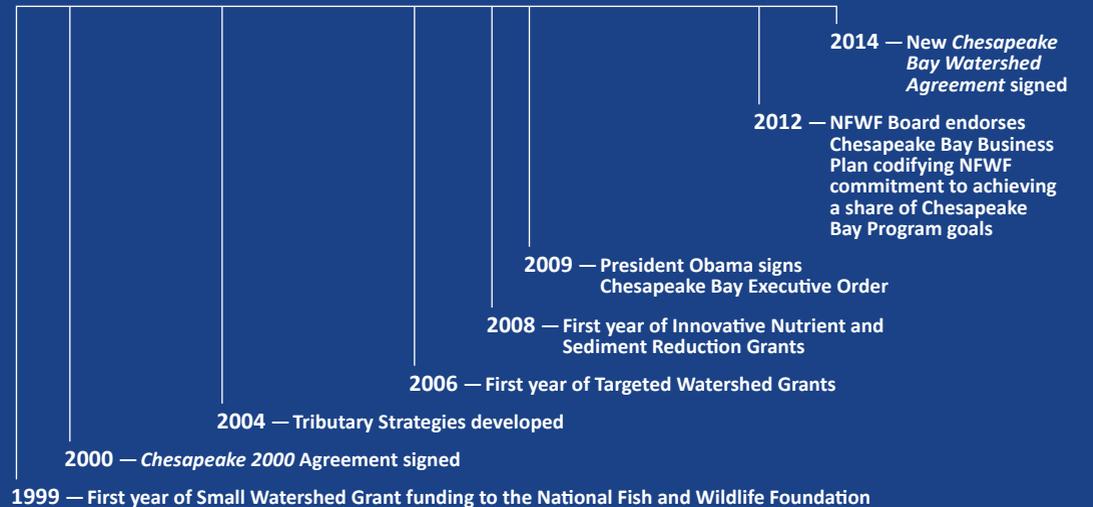
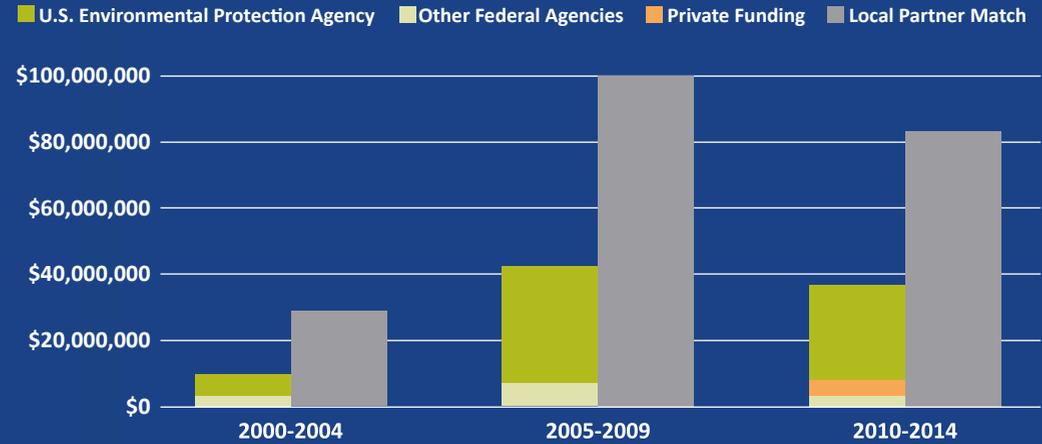
2014  
ANNUAL REPORT

Cover photo: A great blue heron takes flight on the Anacostia River in Washington, D.C.  
Photo credit: Alliance for the Chesapeake Bay

- 2014 Implementation Grants
- Capacity Building Grants
- 2000-2013 Grants



### Chesapeake Bay Stewardship Fund Grants





# HISTORY OF A PARTNERSHIP

January 2015

## ***Celebrating 15 Years of Partnerships in Conservation and Restoration***

Fifteen years ago, the U.S. Environmental Protection Agency (EPA), under the direction of Congressional appropriations, took a landmark step in supporting local water quality improvement and natural resource restoration efforts in the Chesapeake Bay watershed by establishing the Chesapeake Bay Small Watershed Grants (SWG) Program. This new program was based on the premise that one of the most cost-effective ways to protect the rivers and streams in the watershed is to help, encourage and promote stewardship among citizens. Up until then, the Chesapeake Bay restoration effort – begun in 1983 with the signing of the initial Chesapeake Bay Agreement – had largely been the purview of federal and state regulatory and natural resource agencies. But with these grant funds, local partners would be formally enlisted in the restoration effort.

From the start, the National Fish and Wildlife Foundation (NFWF) was a critical partner with EPA and the federal-state Chesapeake Bay Program in the delivery of this new Chesapeake Bay grant funding, administering and managing the SWG program and

leveraging EPA funding with additional resources provided by NFWF's other federal and private conservation funders. Bolstered by this initial success, the program was codified through the Chesapeake Bay Restoration Act of 2000.

EPA has since grown its contributions to NFWF's Chesapeake programs through SWG and two successive and complementary programs – the Targeted Watershed Grants (TWG) Program and the Innovative Nutrient and Sediment Reduction Grants (INSR) Program. Leveraged by this core EPA funding, NFWF has enlisted additional federal agency funders and attracted a host of corporate and foundational donors in establishing the Chesapeake Bay Stewardship Fund. The result is an innovative and integrated public-private funding source that has transformed into one of the largest non-governmental sources of grant funding for the restoration and protection of the Chesapeake Bay.

All told, the CBSF has awarded more than \$100 million in grant funding since 1999 to nearly 900 projects

spread across the Chesapeake Bay watershed, growing almost 10-fold since its inception. When including the local resources brought to these projects, CBSF funding has facilitated more than \$300 million for direct, on-the ground restoration actions, capacity building for local partners, and enhanced communication and networking for the restoration community.

This report serves as both a look back on this 15-year history and as a look forward to the future of CBSF and the broader Chesapeake restoration program, driven by an accelerated watershed-wide implementation effort, a refreshed Chesapeake Bay Watershed Agreement, and new strategic plan for CBSF. We look forward to reflecting on this history of partnership and envisioning how CBSF can further contribute to a restored Chesapeake Bay watershed.



# CONSERVATION GOALS

The mission of the Chesapeake Bay Stewardship Fund (CBSF) is to protect and restore the Chesapeake Bay by helping local communities across the watershed improve their rivers, streams, and natural resources. By supporting these local efforts, CBSF leverages work to improve the local environment into the larger efforts underway to restore the Bay, a national treasure that is the largest estuary in the United States. We achieve this mission through a range of investment tools and activities that accelerate conservation, improve water quality, and engage communities in the restoration effort through the work of our partners. Three overarching strategies guide our investments through the CBSF. They include:

**Targeted River and Watershed Restoration:** *Invest in targeted watersheds where opportunities exist to simultaneously improve water quality, restore habitats, and recover critical species.*

A core principle of CBSF is that targeted investments can achieve measurable water quality improvements that benefit local natural resources and serve as a catalyst for similar efforts in other localities. In 2012, NFWF and partners with the Chesapeake Bay Program combined data on stream health, water pollution, fish populations, and urbanization to identify regions where targeted CBSF investments could provide lasting value in both improving the health of local rivers and streams and accelerating regional goals for water quality improvement and natural resource conservation.

CBSF supports restoration in these targeted watersheds through financial and technical assistance to a range of partners, including local soil and water conservation districts, watershed organizations, land trusts, and academic institutions. These partners, in turn, assist farmers in improving the environmental performance of their operations, install and maintain natural filters along streams corridors, and restore important habitats that both improve water quality and enhance wildlife populations.

**Green Infrastructure in Urban Landscapes:** *Invest in projects that build local government capacity for green infrastructure and accelerate adoption of green infrastructure practices on private lands.*

With more than 17 million watershed residents, stormwater runoff is the only growing source of pollution to the rivers and streams that feed the Chesapeake Bay, but local governments and watershed residents often lack the tools and resources necessary to reduce stormwater runoff and its impacts on local streams.

CBSF grants and technical assistance help municipalities, institutions, and homeowners enhance stormwater management in their communities by connecting them with leading experts in green infrastructure design and engineering, economics and public finance, and community outreach. CBSF-funded green infrastructure projects range from small-scale homeowner outreach programs to municipal-scale stormwater management projects and environmental site designs. Collectively, these actions demonstrate how local investments in stormwater improvement can benefit local economies, protect local resources, and build stronger and more resilient communities.

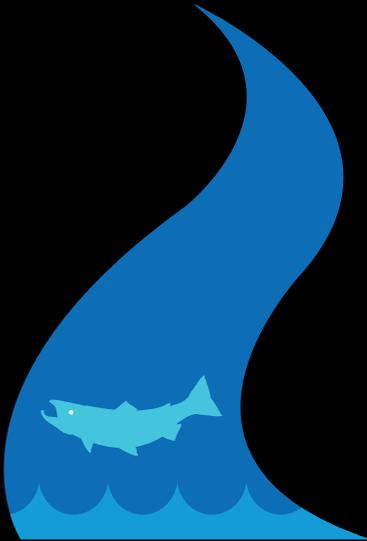
**Innovation on Crosscutting Issues:** *Invest in innovative methods and new technologies that can drive down costs, expand the effectiveness of restoration practices and accelerate the pace of recovery.*

We have seen remarkable progress over the past 30 years of Chesapeake restoration. However, the remaining conservation challenges and funding constraints demand continued innovation – not just improving the efficiency and effectiveness of our current approaches, but finding new technologies, enlisting new partners, and empowering citizens, landowners, and businesses to contribute.

CBSF is advancing innovation on many fronts through funding to pioneering partners in academia, nonprofits, and local governments. We're supporting advanced technologies across many sectors, from "smart" stormwater control structures to systems that turn livestock manure into cheaper and cleaner energy for agricultural producers while improving environmental and economic performance. CBSF support is also driving innovation on restoration economics and social science, including more sustainable financing strategies for stormwater management and cutting-edge approaches to social science that can change behaviors that benefit the environment.

# CONSERVATION OUTCOMES 2000-2014

## Targeted River and Watershed Restoration



**9,409**

Acres of Riparian Forest Restored

**5,972**

Acres of Wetlands Restored

**374,724**

Acres with Agricultural Conservation Practices

## Green Infrastructure in Urban Landscapes



**2 million**

Square Feet of Rain Gardens and Bioretention Installed

**1.6 million**

Square Feet of Impervious Surfaces Removed

**11,235**

Acres with Improved Stormwater Management

## Innovation on Crosscutting Issues



**14.9 million**

Pounds of Nitrogen Reduced Annually

**4 million**

Pounds of Phosphorus Reduced Annually

**365,161**

Tons of Sediment Reduced Annually



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*“Lancaster has been truly blessed with rich, fertile agricultural farmland juxtaposed by traditional urban cores.” – Charlotte Katzenmoyer, City of Lancaster*  
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# TARGETED RESTORATION, FROM CITY TO COUNTRY

## *Stormwater Plans and Agricultural Nutrient Management*

Lancaster County, Pennsylvania is home to over 5,000 farms, large and small. It's also one of the fastest growing counties in the state. This combination of intensive agriculture and rapid urbanization makes it a hotspot for nutrient and sediment pollution to the Bay and a major focus for targeted investment through the Chesapeake Bay Stewardship Fund.

Lancaster City is the county seat, an urban hub of roughly 60,000 residents. While it's one of the oldest cities in America, Charlotte Katzenmoyer, the city's Director of Public Works, has utilized CBSF grant assistance to make historic Lancaster City one of the most progressive cities on stormwater management in the state of Pennsylvania. Her office handles code and ordinance revisions, demonstration projects, and support for private financing of urban stormwater retrofits. In fact, a craft beer brewery chipped in for pervious pavers, beautifying its entrance while stopping stormwater.

Katzenmoyer believes, "Lancaster has been truly blessed with rich, fertile agricultural farmland juxtaposed by traditional urban cores. Both of these have posed unique challenges to meeting the Chesapeake Bay pollution reduction plan. These challenges have not stood in the way of the heritage of the community toward stewardship for the earth that has been the tradition for generations." But she adds that "without the infusion of seed money from EPA and NFWF into the community, the leadership shown by the community would probably not have been as transformative as it has been."

**Photo: Amish farm, Lancaster, Pennsylvania.**

The urban landscape of Lancaster City is being transformed into a more sustainable, green oasis through the implementation of the city's 2011 green infrastructure plan, said Katzenmoyer. CBSF-funded demonstration projects allowed the community to see a revitalized urban landscape and "the community became 'hooked,' and wanted to see more projects completed in their neighborhoods," she said. "Grant funds were used to implement an impervious-area-based fee and code revisions to institutionalize our program and ensure that it continues. The final piece to the transformation was to incentivize private property owners to embrace the same green technology that the City had led with by example."

Meanwhile, the County's more rural landscapes are home to the densest livestock population in the country and a centuries-old legacy of Amish and Mennonite farming communities. Matt Ehrhart, of the Stroud Water Research Center, has used CBSF support to improve the environmental and economic sustainability of these unique Lancaster County farms through Stroud's innovative "whole farm" approach to holistically address water quality issues across the entire farming operation. Over a three year window, he's helped upgrade over 60 Amish and Mennonite farms with practices that improve local streams and meet state conservation requirements, including implementation of forested buffers that keep manure and cows out of streams while filtering runoff from adjacent farm fields.

Importantly, engagement with Plain Sect cultural and religious leaders has helped make this change a reality. Plain Sect farmers may be less likely to use technology and are not as willing to

accept public funding to improve agricultural practices. EPA and NFWF "had the foresight to see that working with these farms would be an evolution" said Ehrhart, who has worked tirelessly with community leaders to gain trust and improve participation of local farmers. Fortunately, "the scale and breadth of some of these grants can be directed to real outcomes. It takes a large financial investment to get to this critical mass" of participation that can achieve measureable watershed restoration.

CBSF support is also providing technical tools to better account for and target the full scope of the County's restoration efforts. A grant to the Lancaster County Conservation District (LCCD) helped to generate a cost-benefit analysis of conservation practices and create a geospatial database to better track conservation efforts across the county. Christopher Thompson, LCCD District Manager, says those investments help him more efficiently achieve the mission of the Conservation District to encourage and promote the good stewardship of the County's natural resources.

"We all live downstream," said Thompson, adding that "the quality of water available to us is determined by our upstream neighbors." His sentiment is at the core of CBSF's targeted watershed restoration efforts. By focusing investment in priority areas like Lancaster County, CBSF is achieving more cost-effective restoration while measurably improving local water quality. "If we can achieve improved local water quality across the Bay watershed, we can benefit our local communities while sending the cleanest water possible downstream."



***“Local jurisdictions like Prince George’s County are leading the way by providing valuable examples to others on the road to creating sustainable communities and healthy watersheds.” – Shawn M. Garvin, EPA Regional Administrator***



# GREEN INFRASTRUCTURE IN URBAN LANDSCAPES

## *Municipalities Must Be Entrepreneurial*

The Chesapeake Bay watershed is home to more than 17 million people and growing rapidly. It's no surprise, then, that urban and suburban runoff is the only growing source of pollution to the rivers and streams that feed the Bay.

The highly developed Anacostia River watershed in Maryland and the District of Columbia serves as an illustration of just how tough of a challenge it can be to manage stormwater in urban communities, especially those serving low-income and disadvantaged residents. But through a suite of restoration projects and investments in local government capacity building, CBSF support is helping to demonstrate how the use of green infrastructure can help address stormwater runoff while also improving community well-being through urban green spaces, improved transportation corridors, and a host of other benefits.

The Low Impact Development (LID) Center, Inc., based in the Anacostia River watershed, is using CBSF resources to accelerate the use of green infrastructure for managing stormwater across several municipalities in Prince George's

County, Maryland. Their CBSF-supported efforts include restoration projects that have helped to "green up" main streets in several towns across the county, as well as projects that are delivering technical stormwater management and engineering expertise to municipalities without dedicated environmental staff.

"We are taking a non-traditional approach to create a better environment," said Neil Weinstein, the LID Center's executive director. "While there are still challenges in the county, Prince George's County is now very far along compared with others working on green infrastructure planning. Now it is a question of implementation."

"People have done stormwater work a certain way for 30 years now. There are more options now than there once were," added Weinstein, including new methods for integrating traditional infrastructure spending, leveraging funds and using transportation dollars wisely for capital improvements.

Still, many local governments lack the financial resources to adequately address stormwater pollution. That's the driving force behind the work of Joanne Throwe, director of the University of Maryland's Environmental Finance

Center (EFC). Throwe and her colleagues at EFC are using CBSF support to develop recommendations and advise local governments on the most cost-effective and efficient solutions to stormwater management that would work at the local level, including the establishment of stormwater fee programs to finance necessary improvements.

But "when trying to help a local government, it's more than just about implementing a new fee," she said. "You need to begin by understanding their issues, their culture, and the makeup of the community. No two communities are ever the same. We try to help communities prioritize projects, understand the costs associated with those projects and make them rethink the way they manage their resources," she added.

Shawn M. Garvin, EPA's Mid-Atlantic Regional Administrator, also believes environmentalism is often local. "Local governments around the country are seeing the benefits of utilizing green infrastructure for controlling stormwater and improving quality of life for its citizens," he said. "Local jurisdictions like Prince George's County are leading the way by providing valuable examples to others on the road to creating sustainable communities and healthy watersheds."

*Photo: Partially restored urban stream channel in the Anacostia River watershed. Photo Credit: NFWF*

*“This system has the potential to reduce inputs, including fossil fuels, and increase the health of the chickens on the farm.” – Dan Heller, Lititz, Pennsylvania*



*Photo: Manure-to-energy facility. Photo credit: NFWF*



# CREATIVE SOLUTIONS TO ACCELERATE PROGRESS

## *Manure to Energy and Smart Stormwater Technologies*

CBSF funding plays a critical role in the delivery of innovative technologies and new approaches that hold promise to drive down costs and increase efficiency in the Bay restoration effort. Through CBSF's INSR Grants, our partners are helping specifically address two of the biggest remaining issues – manure management and stormwater runoff.

Manure has long been considered an efficient way to fertilize crops. Unfortunately, the supply of manure in some areas often exceeds demand. The balance of nutrients in manures also may not match what's needed by local crops, leading nutrients unused by crops to runoff the surface of farm fields or build up in soils.

Through CBSF funding, Kristen Hughes Evans of Sustainable Chesapeake works to better utilize excess manure through two innovative technological solutions. She points first to an effort to promote direct injection of manure into soils, rather than spreading it on the soil surface where it may runoff into local streams. Her efforts are focused both on increasing the use of proven technologies and adapting those technologies to work with different types of manure in different landscapes.

Her second effort is working to test technologies that can turn poultry litter into a renewable source of on-farm energy while transforming the nutrients in litter into a lighter, more concentrated fertilizer for easier export to areas that

need it. "The project is all about capturing the value of the excess phosphorus and moving it all over the US to places where it is needed," said Hughes Evans. "The goal is to generate new sources of revenue from poultry litter and alternatives to land application."

Dan Heller, who runs a family farm in Lititz, Pennsylvania, says "this system has the potential to reduce inputs, including fossil fuels, and increase the health of the chickens on the farm. We're very excited to deploy some of these new manure-to-energy technologies."

Critical to moving these technologies forward, says Hughes Evans, is the diverse funding for these projects leveraged through CBSF, including Conservation Innovation Grants from the U.S. Department of Agriculture, the EPA's INSR program, and private funding from the Chesapeake Bay Funders Network.

In urban areas areas, CBSF funding is driving innovative approaches to address stormwater runoff. An example is urban stream restoration, an increasingly important approach to limiting sediment pollution to the Bay. Even small storms rush water into urban stream channels, causing scouring of the stream banks and sending sediment downstream. Practitioners are limited, however, by the small footprint of urban streams and surrounding urban infrastructure that limit actions to address streambank erosion.

Steve Saari, with the District of Columbia Department of the Environment, is using CBSF funding to implement new techniques.

"Regenerative stream channel techniques work in a very small footprint of the stream itself. These streams are generally highly-eroded, and the stream is down at the bottom of a channel it has carved for itself, so it is no longer connected with the floodplain area." The approach borrows concepts from bioretention systems and rain gardens to raise urban stream channels and reconnect them with the surrounding floodplain, improving both infiltration of polluted runoff into the soil and removal of nutrients through regular interaction with the floodplain.

CBSF funding is also helping efforts to retrofit existing stormwater facilities to improve their pollutant removal efficiencies. The Metropolitan Washington Council of Governments (WashCOG) is piloting "smart" technologies that can adjust the holding capacity of stormwater facilities in real-time based on meteorological information. WashCOG's Phong Trieu explains that "installing an overflow valve that is regulated at the desktop can control whether or not you release or hold water. You are using real time data to increase efficiencies of these facilities remotely—the new science of stormwater control." This also allows municipalities to know which facilities are operating optimally, a "sort of car alarm" for these structures, says Trieu.



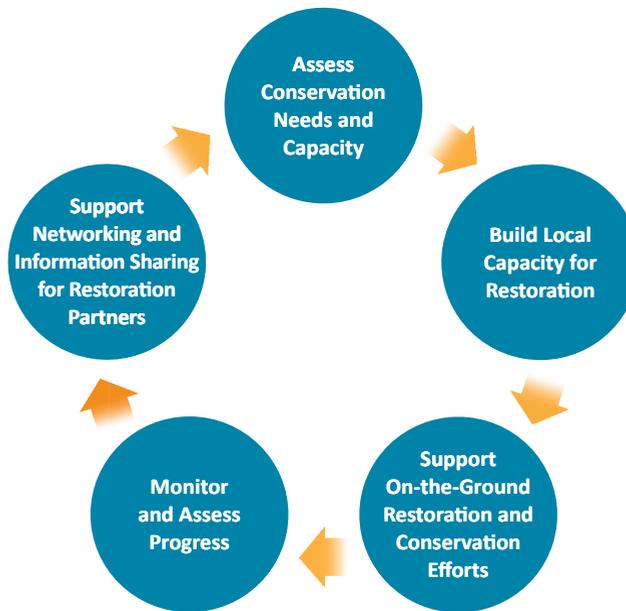
# CBSF Program Delivery

***CBSF employs an integrated program delivery model aimed at achieving its conservation goals through a variety of investment tools and activities.***

**Build Local Capacity for Restoration:** Local governments, watershed organizations, and county conservation districts are on the front lines of the Chesapeake restoration effort. These partners often lack the tools and resources necessary to design and prioritize effective restoration projects, build sustainable environmental programs, and engage their citizens in the restoration effort. CBSF employs a number of tools to build local capacity for restoration, including technical assistance grants, web-based information clear-houses, and on-the-ground liaisons.

**Support On-the-Ground Restoration and Conservation Efforts:** CBSF's most significant investments support efforts of partners to implement on-the-ground restoration projects across the Chesapeake Bay watershed. CBSF operates two large-scale competitive grants programs that provide \$8-10 million in restoration funding annually:

- Innovative Nutrient and Sediment Reduction Grants support efforts with the Chesapeake Bay watershed to accelerate nutrient and sediment reductions with innovative, sustainable, and cost-effective approaches.
- Small Watershed Grants promote community-based efforts



to develop conservation strategies to protect and restore the diverse natural resources of the Chesapeake Bay.

**Monitor and Assess Progress:** CBSF prioritizes the use of sound science in its investments and adaptively manages

those investments to ensure success. Dedicated CBSF support for monitoring and assessment efforts are building more efficient ways to assess the conservation impact of all CBSF's on-the-ground restoration investments, integrate data on these investments into a variety of conservation partners' accountability and tracking efforts, and adapt future grantmaking to the most promising and successful restoration approaches.

**Support Networking and Information Sharing for Restoration Partners:** CBSF investments have helped foster a broad network of partners leading the way in Chesapeake Bay restoration. By promoting enhanced networking and information-sharing among these partners, CBSF helps conservation partners share ideas, identify common obstacles, and develop partnerships to more effectively deliver shared conservation objectives. CBSF employs a number of tools to support increased networking and information sharing for restoration partners, including sponsorship of annual watershed-wide conferences and roundtables, web-based social networking platforms for restoration partners, and media and communications support for local partners.

# Networking and Information-Sharing

CBSF supports several ongoing networking events and initiatives that bring together partners in Chesapeake Bay restoration.

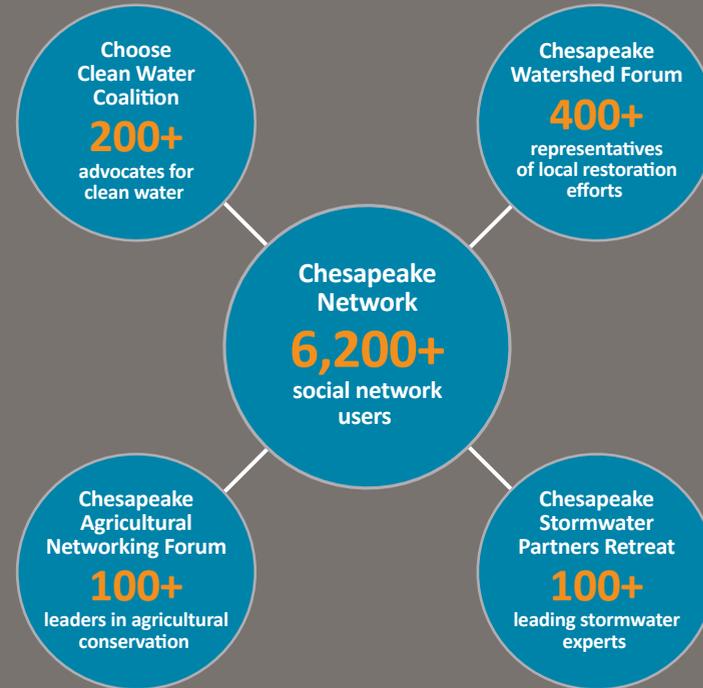


Photo: Chesapeake Bay Program Director Nicholas DiPasquale at the 2014 Chesapeake Watershed Forum. Photo credit: Alliance for the Chesapeake Bay



# PARTNERING WITH THE CHESAPEAKE BAY PROGRAM

CBSF is delivered in close partnership with the federal-state Chesapeake Bay Program (CBP). This regional partnership, coordinated by the U.S. Environmental Protection Agency, has a 30-year history in leading and directing Chesapeake Bay restoration efforts and includes other federal agencies, representatives from the six states in the watershed and the District of Columbia, local governments, non-profit organizations and academic institutions.

**Long-Term Strategic Planning:** CBSF’s long-term investment strategies are driven by the shared commitments and restoration efforts of the CBP partnership. CBSF’s measurable conservation goals were established to contribute to CBP’s own conservation and water quality improvement outcomes, as embodied in various inter jurisdictional CBP watershed agreements. Program delivery strategies were then developed and continue to be improved to provide assistance in response to needs and opportunities identified by the CBP partnership.

**Annual Priority-Setting:** CBSF’s annual investment priorities are developed in close coordination with CBP partners. This annual process ensures that CBSF investments align with the most immediate needs and opportunities to accelerate CBP’s restoration agenda. These priorities are then codified in the funding priorities of CBSF’s annual grant programs, the content and programming of networking and information sharing events, and CBSF’s priorities for monitoring and assessing conservation implementation.

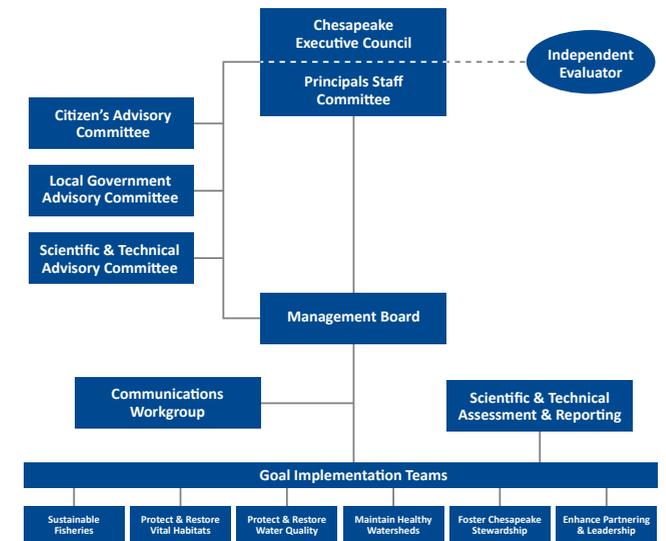
**Grants Review:** CBSF enlists the expertise of CBP partners in reviewing CBSF’s competitive grant proposals for their

technical merits and relevance to emerging policy and program priorities of the partnership. CBSF’s grant review committees are composed of issue area experts and leaders from CBP’s Goal Implementation Teams, as well as partners with CBP advisory committees that represent local governments and interested citizens across the watershed.

**Outreach and Engagement:** CBP is a critical partner in facilitating CBSF outreach and engagement with the broader restoration community, including elected officials, citizens, and the media. CBSF coordinates with CBP to help enlist local media in telling restoration success stories and strategically engages CBP advisory committees in communicating how CBSF-funded efforts can inform local restoration initiatives throughout the watershed.

**Accountability Efforts:** Like CBSF, CBP has established a rigorous system to track restoration progress, including the implementation of water quality improvement practices committed to under state and local Watershed Implementation Plans (WIPs). CBSF is assisting the watershed jurisdictions in this effort by connecting its

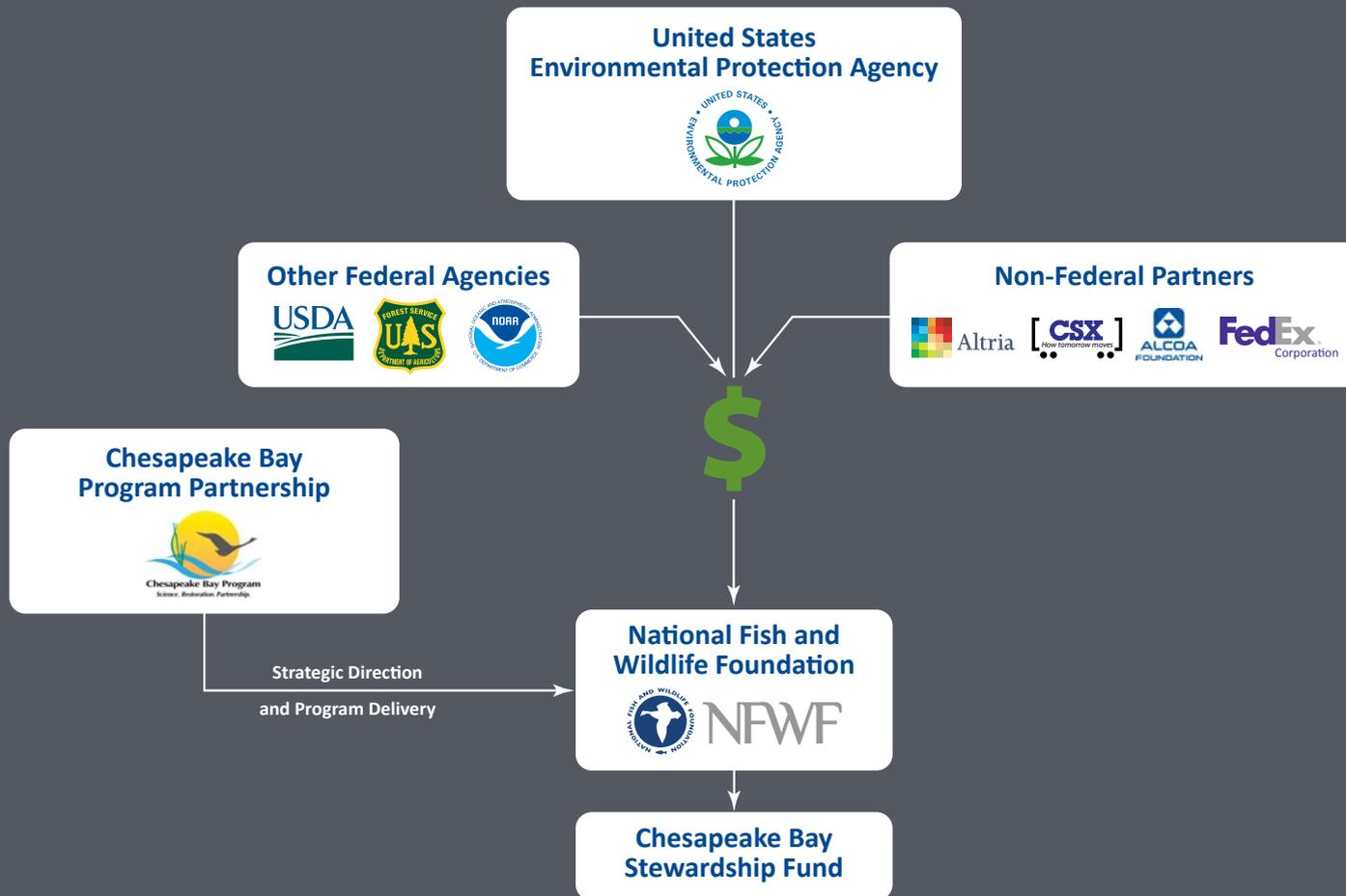
grantees with appropriate state and local reporting liaisons, ensuring CBSF-funded conservation efforts are appropriately credited towards WIP implementation.



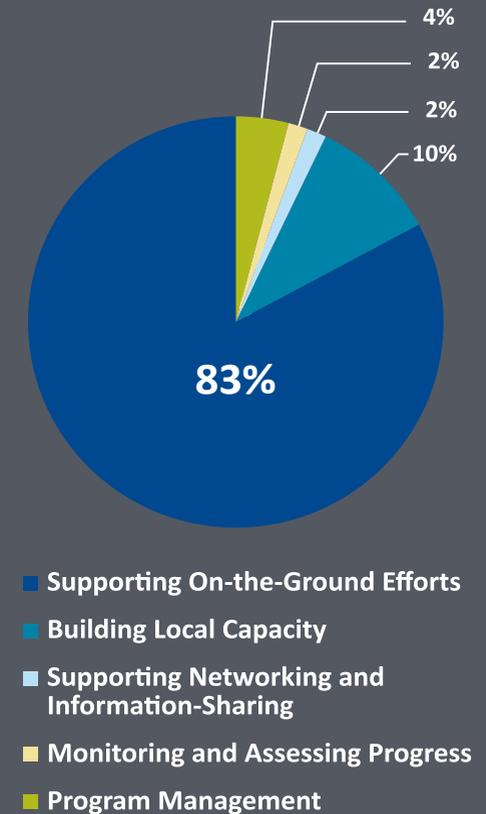
*The Federal-State Chesapeake Bay Program has a robust organization structure designed to ensure open and transparent participation from relevant stakeholders in the restoration effort.*

# CBSF FUNDING SNAPSHOT

CBSF is funded through an innovative public-private funding model that pools the resources of federal and state agencies, corporate and foundation funders, and environmental enforcement actions towards a comprehensive and multi-faceted program for Chesapeake Bay restoration. CBSF grew out of the significant and foundational funding support provided to NFWF through successive cooperative agreements with the U.S. Environmental Protection Agency dating back to 1999. Armed with this core funding, NFWF has transformed CBSF into one of the largest non-governmental sources of grant funding for the restoration and protection of the Chesapeake Bay.



2014 CBSF Funding Program





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Chesapeake Bay Stewardship Fund

Chesapeake Bay Program  
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