

Serving Local Communities

in the Chesapeake Bay Region

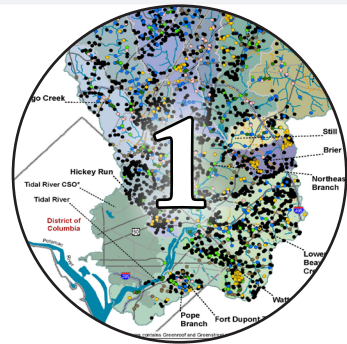
The U.S. Army Corps of Engineers

Technical Service Programs

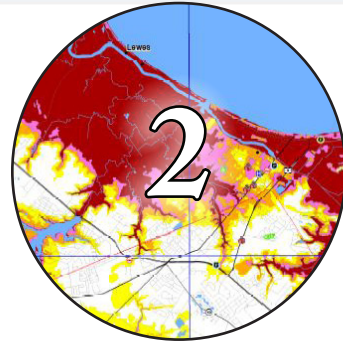
*From large-scale construction to small-scale analyses,
the Corps is committed to Chesapeake Bay restoration
initiatives at all levels across the region*



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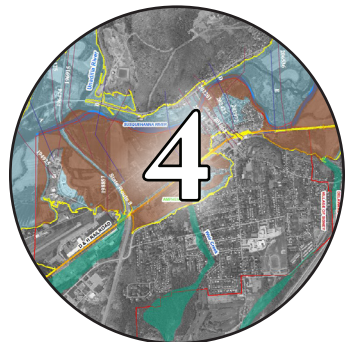
District of Columbia and Maryland



Delaware



Maryland



New York



Pennsylvania



Virginia



West Virginia



Silver Jackets



Regional

The U.S. Army Corps of Engineers provides strong technical services through a variety of programs to address an array of water resources issues in the Chesapeake Bay region. The National Hurricane, Continuing Authorities, Rehabilitation and Inspection, Floodplain Management Services, Planning Assistance to States, and Silver Jackets programs grant the Corps the ability to provide technical water resources services through federal funding or a combination of federal and local funding. This booklet showcases one unique project for each state and the District of Columbia in the Chesapeake Bay watershed.

U.S. Army Corps of Engineers
Technical Service Programs

Corporate Communications Office
July 2015

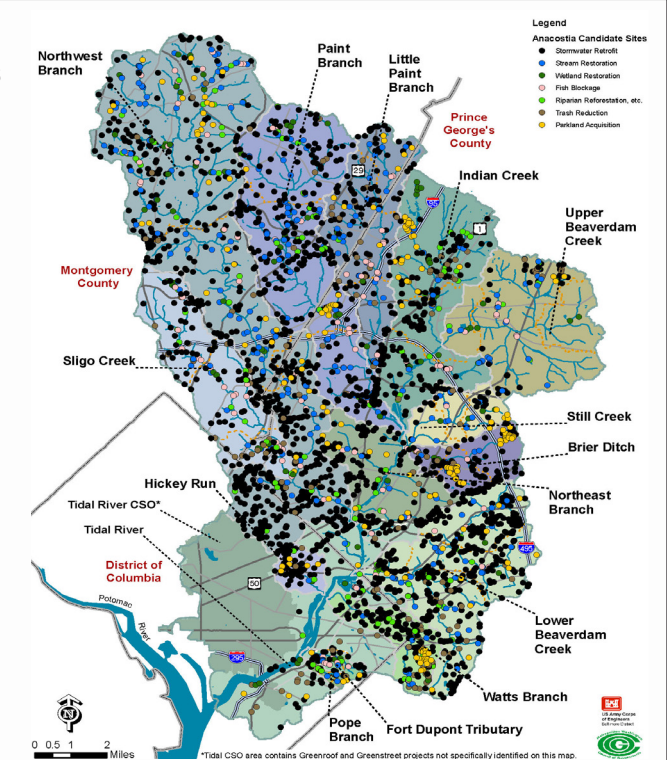
District of Columbia and Maryland General Investigations Program Anacostia Restoration Plan

Project Description: The 2010 Anacostia Restoration Plan (ARP) is the product of a two-year planning effort to produce a 10-year restoration plan for ecological restoration within the Anacostia River watershed - a tributary to the Potomac River.

The Anacostia watershed is one of the most urbanized watersheds within the Chesapeake Bay. The Corps worked with stakeholders to develop a plan to protect, improve and restore the watershed. This collaboration resulted in the development of the ARP, which identified over 3,000 projects for implementation by our partners, including follow-on ecosystem restoration studies with Prince George's and Montgomery counties in Maryland. These studies include investigations of stream restoration and fish passage opportunities.

The ARP and follow-on studies by the Corps were conducted under the Corps' General Investigations (GI) Program. Through the GI program, the Corps jointly conducts a water resources study with a non-federal sponsor. Congress may authorize and fund the project if a Corps' recommendation is found to be feasible.

Partners: The Metropolitan Washington Council of Governments helped establish partnerships with local and state jurisdictions - Montgomery and Prince George's Counties in Maryland, the District of Columbia, Maryland Department of Environment, and the Maryland Department of Natural Resources



Cost Share: Approximately \$1.48 million federal, \$450,000 non-federal, and \$1.03 million non-federal in-kind services

Feasibility studies are cost-shared 50 percent federal and 50 percent non-federal. The non-federal partner provides their share in cash, in-kind services, or a combination of both. Ecosystem restoration project implementation is cost-shared 65 percent federal and 35 percent non-federal.

Delaware

National Hurricane Program

Evacuation Planning

The Baltimore District is home to the Hurricane Program Office, which centrally manages all Corps technical support as part of the Federal Emergency Management Agency's (FEMA) National Hurricane Program. Within this program, the Corps and FEMA work with the National Oceanic and Atmospheric Administration (NOAA) to conduct hurricane evacuation studies with the ultimate goal of helping local communities understand their evacuation timeline. Two example projects are outlined below.

Project Description: The Corps teaches an annual HURREVAC training refresher class for state and local emergency managers at the Delaware Emergency Management Agency - Emergency Operations Center in Smyrna, Del.

HURREVAC is a computer software program that allows emergency managers to track hurricanes, view official forecast information, analyze potential risks, and receive evacuation-timing guidance. It is a product of the National Hurricane Program, which is a multi-agency partnership between FEMA, the Corps, and NOAA- National Hurricane Center. The Corps is responsible for executing the operation and maintenance of the software, as well as administering the training program.

Partner: State of Delaware

Cost Share: \$2,500 federal, cost of hosting the training

Project Description: In 2012, the Baltimore District worked with the Philadelphia District to update the hazards analysis portion of the Delaware Hurricane Evacuation Study that provides valuable information on vulnerability, public evacuation behavior, and shelter demand that aid hurricane planning and ultimately result in the calculation of evacuation clearance times.

This update was based on the 'Sea, Lake, and Overland Surge from Hurricanes' model, which the National Hurricane Center uses to predict storm surge for an approaching hurricane. The areas in Delaware at risk from storm surge flooding were identified using Geographic Information Systems (GIS) software and placed on risk maps. State and local officials in Delaware use these maps to understand where hurricane evacuations may need to occur, in order to be better prepared for the next storm.

Partners: FEMA, NOAA, Delaware Emergency Management Agency, local county emergency management offices

Cost Share: \$50,000 federal, \$0 non-federal

Maryland

Continuing Authorities Program

Aquatic Ecosystem Restoration

Project Description: Paint Branch is an ecosystem restoration project within the Anacostia River watershed in Prince George's County.

The restoration area includes six miles of migratory fish passage for blueback and alewife herring and approximately one mile of stream habitat for resident and migratory fish to spawn.

Fish passage was achieved by raising the streambed downstream of a blockage. Successful spawning habitat consists of hiding places or shelter for the fish during floods and areas of both deep and shallow pools.

The aquatic ecosystem was stabilized and restored through reconnecting the stream to its floodplain, channel realignment and strategic placement of in-stream structures like rocks for grade control and pool creation.



Through the Continuing Authorities Program (CAP), Congress has given the Corps the authority to plan, design, and construct projects for ecosystem restoration, navigation, beneficial use of dredged material, and more. The basic objective of this program is to allow the Corps to respond more quickly to problems or needs in which the project scope and costs are roughly \$10 million or less.

Partner: Prince George's County Department of the Environment

Cost Share: Approximately \$4.2 million federal, \$2.15 million non-federal

CAP studies are cost-shared 50 percent federal and 50 percent non-federal. Construction is generally cost-shared 65 percent federal and 35 percent non-federal. The non-federal share may be provided with work-in-kind, cash, or a combination of both.

New York

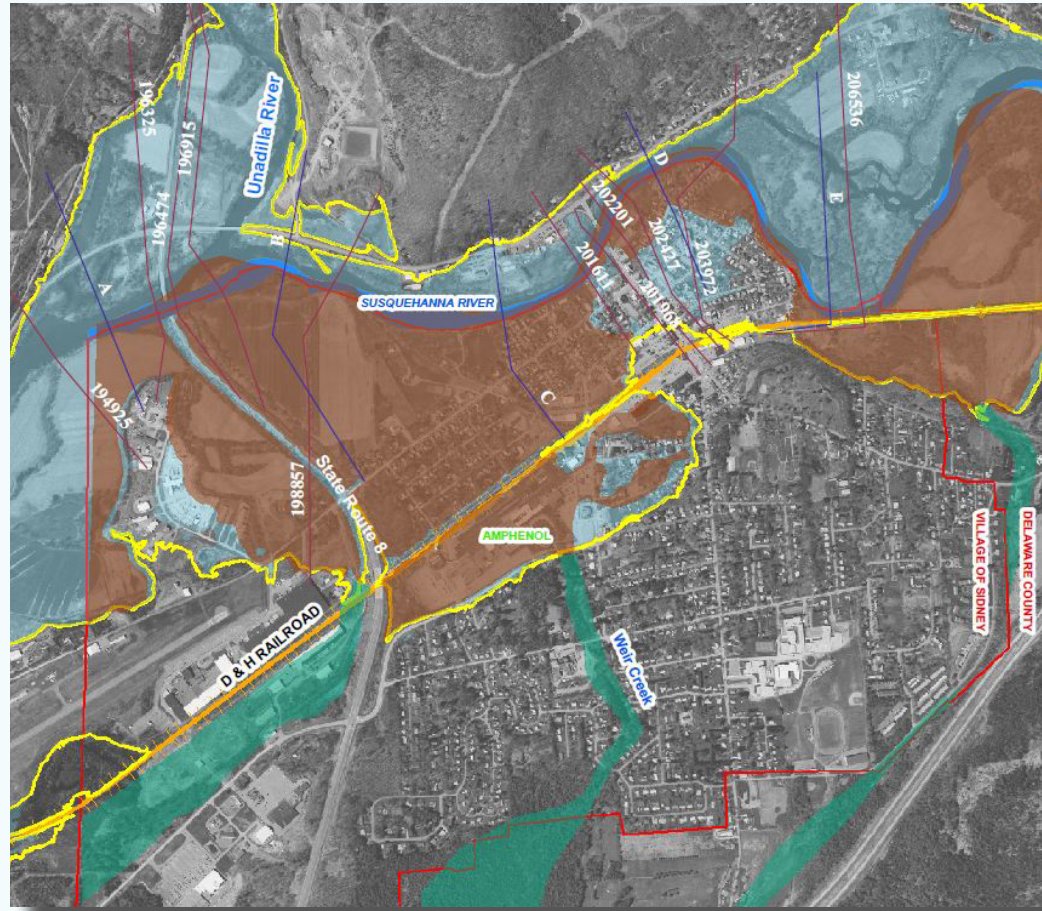
Floodplain Management Services Flood Risk Management Studies

Project Description:

The Corps investigated flooding issues and flood risk management options for the Village of Sidney in Delaware County, N.Y.

The study focused on Weir Creek located on the south side of the Delaware and Hudson Railroad, and the entire Village of Sidney that sits near the Susquehanna River.

Various flood risk management alternatives were evaluated to potentially mitigate for flooding in each area. Options included flow diversion, levees, floodwalls, pump stations, culvert installation, flood proofing, and modifications to channels and bridges.



The Floodplain Management Services (FPMS) Program authorizes the Corps to provide technical assistance and analyses to federal, state, and local agencies on floodplain management related issues.

Assistance includes modeling and mapping,

preparedness and response plans, outreach materials, and more.

Products may be completed with all federal funding or in combination with voluntary contributions from a non-federal partner.

Cost Share: \$300,000 federal, \$0 non-federal

Pennsylvania

Rehabilitation and Inspection Program Flood Risk Management and Rehabilitation

Project Description: The Corps completed repairs to a retention wall in the Borough of Danville that was damaged by Tropical Storm Lee in September 2011. The rehabilitation restored the level of managed flood risk to the Borough of Danville that existed prior to the flood event.

The wall is part of the Danville flood risk management project, which is a non-federal project designed and constructed under the authority of the Pennsylvania Department of Environmental Protection flood control program to reduce the risk of flooding from the North Branch of the Susquehanna River, Mahoning Creek, and tributaries.

Projects eligible under the authority of Public Law 84-99, Flood Control and Coastal Emergencies, Rehabilitation and Inspection Program (RIP) may be rehabilitated to pre-disaster condition following a storm.

Partner: Borough of Danville

Cost Share: \$1.1 million federal, \$275,224 non-federal

Rehabilitation projects for non-federal flood risk management projects are cost-shared 80 percent federal and 20 percent non-federal. The non-federal share may be provided with work-in-kind, cash, or a combination of both. Federal flood risk management projects are repaired at 100 percent federal cost.



Virginia

*Planning Assistance to States
Water Resources Management*

Upper Rappahannock

Project Description: The Corps assisted Stafford County in updating their current stormwater outfall inventory database and conducted a watershed management plan for the Chopawamsic and Tank Creek Watersheds that confluence directly with the Potomac River. Additional tasks included gathering baseline data on nutrient and sediment pollution and presenting potential actions to address the pollution, such as outfall improvements and stream restoration.

The intent of the study was not only to assist the county in meeting Virginia Pollutant Discharge Elimination System permit requirements to assist the state in meeting their Chesapeake Bay pollution restrictions but also to provide a foundation for operation, maintenance, and management decisions for planning purposes.

This work was a follow-up to a prior multi-phased study for the county, in which the Corps conducted stream assessments and completed an inventory of the best management practices and stormwater outfalls for urban areas.

The data was collected and exported to a database for organization to help with future inspections.

Through Planning Assistance to States (PAS), the Corps provides technical assistance on planning and managing water and related land resource issues, such as watershed planning; wastewater studies; data collection and compilation; and alternative analyses.

Partner: Stafford County

Cost Share: \$215,000 federal, \$215,000 non-federal

Analyses are cost-shared 50 percent federal and 50 percent non-federal.



Stormwater outfall at Whitsons Creek

West Virginia

*Environmental Infrastructure Program
Morgan County Courthouse Geothermal Project*



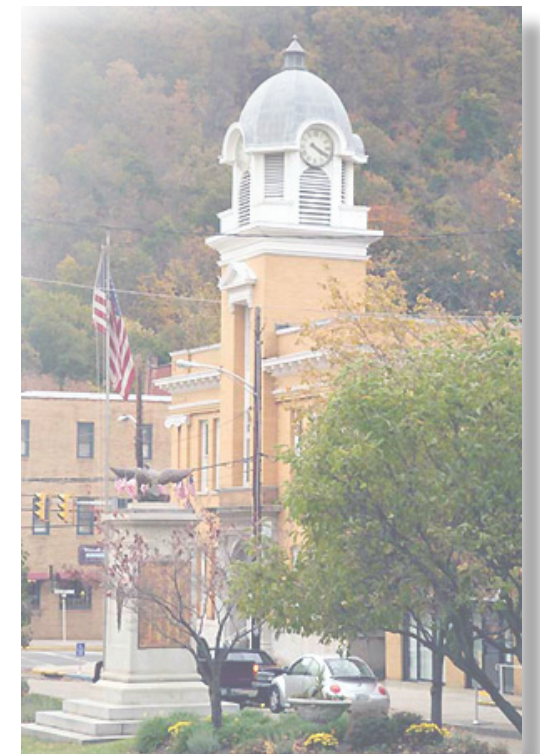
Project Description: In 2011, the Corps completed the design and construction of approximately 200 linear feet of culvert and a geothermal heat exchanger for a new courthouse building in Berkeley Springs. The system uses warm spring stream water to heat and cool the building.

This project is part of the Corps' Environmental Infrastructure program that provides for the design and construction of water-related environmental infrastructure and resource protection and development projects for non-federal interests in 20 West Virginia counties.

Partner: Morgan County Commission

Cost Share: \$225,000 federal, \$75,000 non-federal

Design and construction assistance within the Environmental Infrastructure program is cost-shared 75 percent federal and 25 percent non-federal.



Interagency Floodfighting Teams

The Silver Jackets are interagency teams typically comprised of state, federal, regional and local agencies that work together to reduce flood risks.

Vision Statement

Establish and strengthen partnerships as a catalyst in developing and implementing comprehensive, resilient, and sustainable solutions to local flood-hazard challenges.

Goals

- Ensure continuous collaboration before, during, and after a flood
- Identify and quantify flood risk
- Provide assistance in implementing projects
- Improve outreach on flood risk

As an example, the Pennsylvania Silver Jackets Team worked on flood inundation maps for Harrisburg, Pa.

Data may be used by emergency managers for actions related to evacuation, road closure points, and shutting down power grids. The map covers 20 communities along the Susquehanna River.

Partners: U.S. Geological Survey, National Weather Service, Susquehanna River Basin Commission, The Harrisburg Authority, FEMA, Pennsylvania Emergency Management Agency

Cost Share: \$117,000 federal, \$130,000 non-federal (some in-kind services)



Regional

Oyster Restoration Program

Project Description: The Corps is restoring oyster reefs in Maryland and Virginia. This project contributes to a large-scale effort through Executive Order 13508 and the Chesapeake Bay Agreement to restore native oyster populations in 10 Chesapeake Bay tributaries by 2025.

In Maryland, the Baltimore District is working with its partners to restore oyster habitat in Harris Creek, Little Choptank River, and Tred Avon River. In Virginia, the Norfolk District is working with its partners to restore oyster habitat in Piankatank, Lafayette, Great Wicomico, and Lynnhaven.

Through the interagency partnership, the State of Maryland has planted more than a billion oysters through 370 acres of restored habitat in the Harris Creek Sanctuary since 2011. Since restoration efforts started, areas with less than one oyster per square meter now have upward of 25 oysters per square meter.

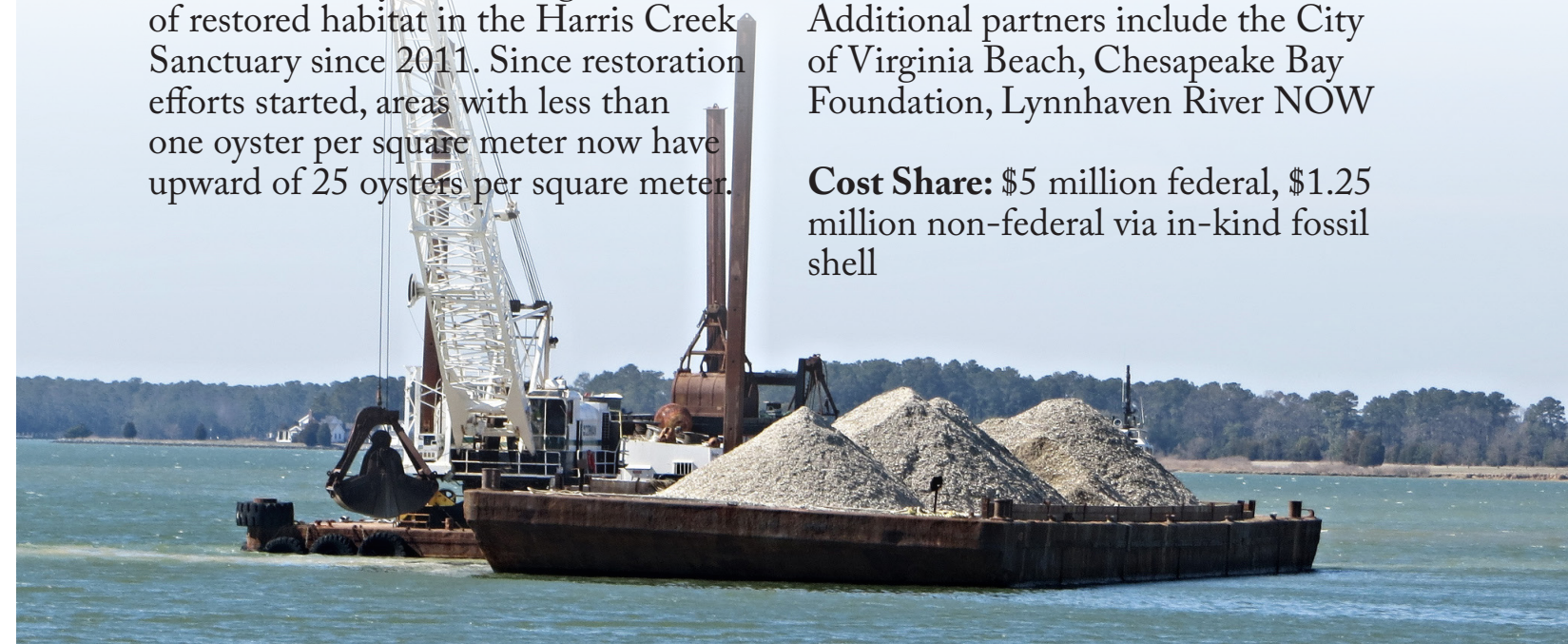
Maryland Partners: Maryland Department of Natural Resources, National Oceanic and Atmospheric Administration, Oyster Recovery Partnership

The Norfolk District has constructed approximately 58 acres of oyster reefs in the Lynnhaven River since 2006. The river is demonstrating improvement in water quality and a significant increase in aquaculture.



Virginia Partners: Virginia Marine Resources Commission. Additional partners include the City of Virginia Beach, Chesapeake Bay Foundation, Lynnhaven River NOW

Cost Share: \$5 million federal, \$1.25 million non-federal via in-kind fossil shell





The U.S. Army Corps of Engineers, Baltimore District, places shell to restore oyster reefs in the Chesapeake Bay tributary of Harris Creek, April 1, 2015.



U.S. Army Corps of Engineers' Mission

Provide vital public engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters.

U.S. Army Corps of Engineers' Vision

A GREAT engineering force of highly disciplined people working with our partners through disciplined thought and action to deliver innovative and sustainable solutions to the Nation's engineering challenges.

Baltimore District
nab.usace.army.mil
CENAB-CC@usace.army.mil
<https://about.me/usace.baltimore>

Norfolk District
nao.usace.army.mil
CENAO-PA@usace.army.mil
<https://www.facebook.com/NAOonFB>