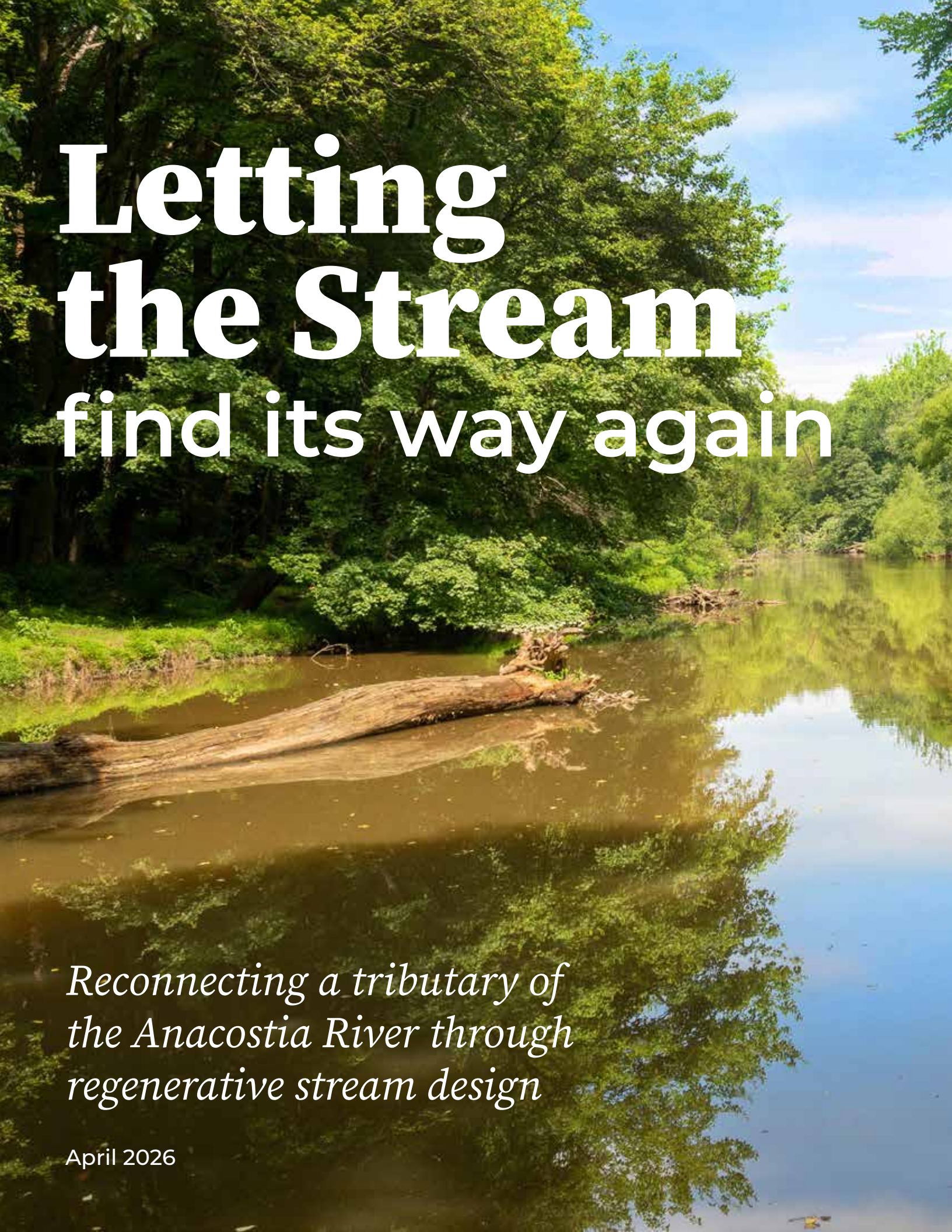

# Letting the Stream find its way again

*Reconnecting a tributary of the Anacostia River through regenerative stream design*

April 2026

*Fort DuPont Park woodland is scattered with a variety of maples, oaks, sweet gum, sassafras and many other trees and shrubs.*

*Confined stream corridor at Fort DuPont Stream.*

*This exposed culvert is just one example of the impacts resulting from channel instability.*

*Cover Image: Anacostia River Northwest Branch.*

# In a wooded corridor in Washington, DC, a small tributary quietly makes its way toward the Anacostia River.

Stormwater runoff from surrounding impervious surfaces funnels rapidly into the channel during frequent and large storm events. Over time, these high-energy flows have dramatically altered the stream's form and function. The channel has become deeply incised, sitting several feet below the surrounding landscape. This incision disconnects the stream from its historic floodplain, preventing storm flows from spreading across the landscape as they once did. Without access to its floodplain, the stream now carries stormwater within a confined channel. These concentrated flows accelerate erosion, transport sediment and nutrients downstream, and degrade water quality in receiving waters, including the Anacostia River.

To address these conditions, the District Department of Energy & Environment (DOEE) is leading a comprehensive restoration project designed to improve hydrologic and aquatic connectivity along approximately 1.5 miles of stream. This effort is one of nine coordinated restoration projects within a broader initiative aimed at restoring more than 18,000 linear feet of stream within the Fort DuPont Watershed. Together, these projects address erosion, water quality, and flood resilience challenges common in highly urbanized watersheds.

## Causes of Channel Incision

The tributary was identified for restoration due to excessive sediment, nitrogen, and phosphorus loading to downstream waters. In urban watersheds like this one, impervious surfaces prevent rainfall from infiltrating into soils. Instead, stormwater moves quickly across paved surfaces and enters nearby streams with greater speed and volume than under natural conditions. Frequent high-flow events, combined with steep hillslopes and sandy soils in the watershed, have contributed to progressive channel incision.

As the channel deepened, the stream lost access to its floodplain. Under natural conditions, storm flows would periodically spill across these floodplain areas, slowing water velocity and allowing sediment and nutrients to settle. Today, those processes rarely occur. Instead, stormwater remains confined within the channel, increasing erosive forces and accelerating the transport of pollutants downstream.

*Image: Steep hillslopes, sandy soils prone to erosion, and concentrated runoff from adjacent impervious areas have caused Fort DuPont Stream and its tributaries to become heavily incised.*

# Regenerative Stream Design Approach

To address these challenges, the project team developed a restoration plan based on regenerative stream design principles. Rather than relying solely on engineered channel stabilization, regenerative stream design emphasizes restoring natural geomorphic and hydrologic processes that allow streams to stabilize over time. The restoration will include a combination of structural and geomorphic interventions designed to reduce stream power, encourage sediment deposition, reconnect the stream with its floodplain, and improve habitat conditions for fish, reptile, and amphibian species identified as conservation priorities by the District of Columbia.

The channel has cut several feet below the surrounding landscape, making streambed elevation a central challenge the design must address. The channel will be filled with a clean mix of sand and wood chips, gradually lifting the bed elevation and raising the water table beneath the floodplain. As floodplain connectivity is restored, storm flows that were previously confined within the channel begin spreading across the floodplain, slowing velocity and allowing sediment and nutrients to settle. Current estimates project the restoration will prevent thousands of cubic yards of streambank material from eroding each year. Keeping that material on site rather than washing it downstream reduces sediment and nutrient loads that can affect water clarity and aquatic habitat quality in the Anacostia. The improved floodplain hydrology is also expected to benefit Eastern Worm Snake *(Carphophis amoenus)*, Northern Ringneck Snake *(Diadophis punctatus)*, Redback Salamander *(Plethodon cinereus)*, and Five-lined Skink *(Plestiodon fasciatus)*, each identified as species of greatest conservation need in the District.

Culvert replacements and stream daylighting, carried out as part of the broader District-wide restoration effort, address a separate consequence of channel degradation: fish passage. Several road and trail crossings in the park currently function as barriers, limiting aquatic connectivity for resident fish populations. Replacing culverts and restoring buried channel segments will remove known fish barriers and improve access to upstream habitat. Restoring that connectivity gives fish and other aquatic species access to habitat and food sources throughout more of the stream network, including the American Eel *(Anguilla rostrata)*, another species of greatest conservation need documented in the park.

**Rock cascades** that step water gradually through the channel, reducing velocity and dissipating energy

**Large woody structures** that stabilize the channel bed, slow water, encourage sediment accumulation, and create habitat complexity

**Channel bed enhancements,** including sand and wood chips, that help gradually raise the streambed elevation

**Culvert replacement** to improve hydrologic and aquatic connectivity

**Stream daylighting** where buried or constrained sections of the stream are restored to more natural conditions

# Environmental Considerations

The project lies within Fort Dupont Park, managed by the National Park Service (NPS), requiring careful coordination to protect ecological resources. The Park contains habitat suitable for the federally endangered northern long-eared bat *(Myotis septentrionalis)*, which relies on mature forested areas for roosting in tree cavities and foraging for insects. To minimize impacts to bat roosting habitat, tree clearing will be conducted outside of the active roosting season.

Additional environmental considerations have been incorporated into the design to protect the park environment and the surrounding community. Work will be limited to daylight hours, reducing disturbance to wildlife and nearby residents. Restoration structures will be installed using low-tech process-based restoration methods, an approach that relies on hand labor and natural materials rather than heavy machinery, minimizing soil compaction and ground disturbance. Existing roads and trails will be used for materials staging and crew access, avoiding the need to construct new access routes through the park. Together, these measures are intended to protect the woodland habitat and community setting that define Fort Dupont Park.

*Above: Adobe Stock photo of bats in flight.*

*Right: Federally endangered northern long-eared bat (Myotis septentrionalis).*

# Community Engagement

Located near residential areas and public parkland, DOEE placed strong emphasis on community outreach during project development. Project staff conducted door-to-door engagement with nearby residents, providing information about the restoration and gathering feedback about potential concerns related to construction impacts. This outreach helped inform decisions related to construction timing, access routes, and noise mitigation strategies. The feedback directly shaped how the work will be scheduled and implemented.

For one DOEE staff member, those conversations were essential. These efforts helped build trust within the community and provided residents with opportunities to understand the long-term goals of the restoration.

*Image: Anacostia River, Washington, DC.*

> I believe it's essential to meet people face-to-face, not just to explain the project, but to show them who is behind it. When I stand at their doorstep, they can put a face to the project and know there is a real person they can talk to and trust.

Josh Burch, DOEE Environmental Protection Specialist

# Anticipated Ecological Changes

*Reconnecting the stream to its floodplain will gradually alter site hydrology.*

The stream's incision over time lowered the water table beneath the floodplain, allowing upland tree species such as tulip poplar *(Liriodendron tulipifera)* to establish in areas that would otherwise support wetland and riparian vegetation. As the streambed is raised and floodplain inundation is restored, those species may struggle to adapt to wetter conditions. Their decline, where it occurs, reflects the hydrology returning toward its natural state. The restoration plan includes planting thousands of native trees, shrubs, and herbaceous species suited to the restored floodplain conditions. Over time, these plant communities are expected to improve overall ecosystem diversity and function.

*Vegetation communities will naturally evolve as soils become wetter, a sign the restoration is working as intended.*

# Project Status & Next Steps

After nearly a decade of planning and design development, the project recently reached a major milestone with completion of the 100 percent design. Construction bids were sought in February 2026, and restoration efforts are anticipated to begin by the end of the year.

Once implemented, the project is expected to deliver a range of long-term benefits.

## LONG-TERM BENEFITS

**Reduced** sediment and nutrient loads to the Anacostia River

**Improved** stream stability

**Enhanced** aquatic habitat and biodiversity

**Greater resilience** to frequent storm events common in urban watersheds

By restoring natural hydrologic processes and reconnecting the stream to its floodplain, the project represents an important step toward improving watershed health within one of the region's most urbanized landscapes.

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*This success story was developed by Environmental Consulting & Technology, Inc. (ECT) to share information about the National Fish & Wildlife Foundation's (NFWF) America's Ecosystem Restoration Initiative (AERI) Program. For more information on this project or the AERI Program, contact ECT's Field Liaison Team or visit ECT's NFWF National Programs page.*